



WINDSOR INDUSTRIES, INC.
Denver, Colorado 80223

INSTRUCTION MANUAL AND PARTS LIST

INSPECTION

Carefully unpack and inspect your extractor cabinet for shipping damage. Each unit is operated and thoroughly inspected before shipment, and any damage is the responsibility of the delivering carrier, who should be notified immediately.

ELECTRICAL

The COMMANDER hot water soil extraction machine is designed to operate on a standard 15 amp., 115 volt, 60 hz A.C. household current. Voltages below 105 volts or above 125 volts will cause potential damage to vac motor and pump motor. A 25' electric cable of 14/3 SJTO wire with 3-prong plug is supplied as the power connection to the machine.

*220 volt, 50 hz model available.

GROUNDING INSTRUCTIONS

To protect the operator from electric shock, this machine must be grounded while in use. The machine is equipped with an approved three-conductor power cord and three-prong grounding type plug to fit the proper grounding type receptacle.

WARNING: To avoid electric shock do not expose to rain — store indoors.

EXTENSION CORDS

If an extension cord is used, the wire size must be at least one size larger than the power cord from the machine and should be limited to 75 feet in length. Extension cord must be three-wire grounded.

EQUIPMENT SETUP

1. Install vac dome in place, centered on locating pins to insure a good seal.
2. Plug power cable from machine into properly grounded wall outlet.
3. Turn vacuum motor switch on and off to make sure you have electric power at machine.
4. Connect vac hose to hose inlet on dome. Connect solution hose to outlet nipple on machine by sliding back knurled collar on female coupler and installing coupler over nipple. Release collar to lock them together. Make sure coupler is secured to avoid leaks.
5. Using a clean container, fill solution tank with hot water. The maximum capacity of COMMANDER is 18 gallons. Mix in a nonfoaming concentrate for use in hot water extraction machines at the proportions as noted on the container for various carpet soil conditions.
NOTE: When using a powder cleaner, premix with hot water in clean container before adding to solution tank.

OPERATING INSTRUCTIONS FOR AUTO FILL AND PUMP OUT SYSTEM

The accessory kit includes two 3/8" x 50' hose assemblies, one for auto fill and the other for the auto pump out. A faucet adapter kit is included to allow the auto fill hose to be connected to most bathroom/kitchen sinks and water heater faucets.

To fill solution tank, connect the quick-disconnect coupler on the auto fill to the nipple on the proportioning valve. Connect other end of hose to water source. Use faucet adapter kit as required.

Liquid chemical can be induced from any size container and mixed in solution tank with hot water at the desired mixture. (Refer to enclosed valve manual for flow rate adjustment.) Turn on water source valve. When the solution level reaches one inch below the top of the float (tank will be approximately three-quarters full) proportioning valve will shut off. When solution lever drops approximately six inches, the valve will open and fill solution tank.

For auto pump out, attach waste-water hose to pump out hose outlet adapter on machine. Discharge end of hose should be secured to slop sink, kitchen sink or other source where waste-water is to be discharged to eliminate hose being moved and dirty water being spilled outside the dumping area. Turn on auto pump out switch when pump and vac switches are switched on for Operation.

With the power unit and floor tool in operation, the solution flow and waste-water discharged will be automatically controlled with the auto fill and pump out accessory kit.

CARPET INSPECTION

Determine precisely what areas you are going to clean. Note problem areas in the carpet or tack strip. Look for loose carpet, heavily damaged areas, discolored stains, or grease spots that will require prespotting. Note the carpet type. Check the availability of hot water, drains, suitable electrical outlets. If the carpet is loose or torn, have it repaired before you start to clean it.

Plan your cleaning route, working from the most remote area toward the exit. Try not to travel over the cleaned areas for water or to dump waste. Furniture should be moved out away from walls before cleaning. If replaced on damp carpet, use foil or plastic protectors under the legs to prevent possible carpet staining. If possible, open all windows and doors to speed carpet drying.

OPERATION

1. Connect vacuum and solution hoses to wand, floor tool, or powered brush floor tool.
2. Turn on pump and vacuum switches.
3. Start in one corner, depress solution valve lever fully and move backward at a steady pace; 25 to 30 feet per minute, cleaning a path at least half the length of the room. Release solution valve lever approximately 6 inches before reaching the end of the pass to insure that cleaning solution is extracted from carpet.
4. Make the next cleaning pass beside the first, overlapping about 1 inch. Continue cleaning until entire width of area has been cleaned.
5. Reverse direction and clean balance of room.

On heavily soiled carpets or on areas of high foot traffic, it may be necessary to use a prespray or traffic lane cleaner applied with a separate sprayer. Do not add presprays to the machine solution

tank. If you use a spotter, follow label directions exactly. Remove the spotter with the floor tool when done. Never leave any spotter in a carpet — it may bleach or brown it permanently.

Shag carpets may require several passes from different directions, but be careful not to oversaturate. In these cases, make several vacuum passes without spray to extract as much moisture as possible.

As you work, check to see if there is foam buildup in the recovery tank. If there is, remove the vacuum hose from the floor tool and add a little defoaming compound while the vacuum is running. Defoamer can be added to the recovery tank, but never to the solution tank.

WARNING: An overflow of foam into the vacuum motor can cause it to fail! Constantly monitor the level of waste water in the recovery tank. When about three-quarters full, shut off the machine and empty recovery tank, using a 5 gallon bucket, or dump directly into slop sink, floor drain, etc.

PROTECT FROM FREEZING

If it becomes necessary to store in temperatures that could drop below 45 °F, the pumping system, hoses and valves must be protected from freezing with a methyl hydrate window washer antifreeze solution. Do not use ethylene glycole or cooling system antifreezes.

1. Add a gallon or two of window washer antifreeze to the supply tank, hook up hoses to the machine and floor tool and turn the power switch ON. Spray until the antifreeze solution fills the solution lines.
2. Disconnect solution supply hoses and vacuum out the leftover antifreeze from the supply tank. Always allow the unit to reach room temperatures before filling with hot water or operating.

DAILY MAINTENANCE

1. Vacuum surplus solution from solution tank into recovery tank.
2. At the end of every working day, flush entire pumping system, including floor tool, hand tool, etc. with 1 to 3 gallons of clean hot water.
3. Check vac intake screen in recovery tank well. Remove any lint buildup.
4. Inspect solution filter in solution tank. Filter screen can be cleaned by washing under hot water faucet.
5. Check bypass valve (located in solution tank). Bypass solution spray should be evident when pump is running. If valve becomes plugged, remove and clean thoroughly with hot water or white vinegar. Blow dry and reinstall.
NOTE: Bypass valve is preset at factory. DO NOT CHANGE SETTING.
6. Lubricate quick disconnect hose fitting with silicone lubricant. Do not use petroleum based lubricants as they will cause damage to the "O" rings.
7. Check spray nozzles frequently. If they become clogged, remove them, wash thoroughly

(continued on back page)

and blow dry. Do not use pins, wire, etc. to clean nozzles as this could destroy spray pattern.

- Periodically inspect hoses, electrical cables, filters and connections on your machine. Frayed or cracked hoses should be repaired or replaced to eliminate vacuum or solution pressure loss. Because the electrical cable will lie on wet carpet at times, the cable must be well insulated and cable connector screws kept tight. If the cable insulation is broken or frayed, repair or replace it immediately. Don't take chances with an electrical fire or shock.

6 MONTHS OR 750 OPERATING HOURS

Removing Cabinet Assembly From Base:

CAUTION: Always disconnect the machine from power source before attempting any maintenance or repair to the electrical system.

- Remove dome and turn machine upside down. Remove four screws located on extreme lower part of cabinet that secure caster base to cabinet.
- Lift up caster base to expose hoses and electrical plug connector to pump motor. Disconnect hoses at solution cabinet (quick-disconnect fittings) and electrical motor plug connector. **NOTE:** Solution hose connections are color coded. Make sure colors are matched when reinstalling hose, quick disconnect couplers.

VACUUM MOTOR

- Remove three hex nuts holding vac motor down.
- Lift vac motor from mounting studs.
- Pull off exhaust hose.
- To inspect brushes, remove metal wraparound from the vac motor (one screw). Remove brush hold-downs. New brush length is 1". Brushes should be replaced when they reach 3/8" length, or after 750 operating hours.
- Inspect vacuum Intake opening for lint.. If there are large accumulations, the fan section should be disassembled and cleaned.

NOTE: Vacuum motors can usually be repaired, but such repairs should always be done by a qualified vacuum repair shop.

PUMP AND MOTOR

To remove pump and motor, disconnect wires, hoses and cord tie-down, and remove four screws holding motor to base. The pump can be removed from motor by loosening the "V" band mounting strap.

PUMP MOTOR

Sleeve bearings in motor require periodic re-oil once a year with 30 to 35 drops of SAE #20 non-detergent or electric motor oil. Do not overlubricate.

PUMP

The pump has maintenance-free, self-lubricating carbon graphite internal bearings and prelubricated, sealed-for-life external ball bearings.

ELECTRIC

After repairs have been made on components inside the extractor, check all electrical connections to insure that they are reinstalled properly and that none are loose.

SENSOR SYSTEM GENERAL OPERATION

The purpose of the Sensor System is to protect the pump from damage due to dry operation and to protect the vacuum from damage due to overflow of waste water. The Sensor System is functional when the sensor switch is in the ON position.

Operation of the Sensor System is dependent on low voltage electricity being conducted through water. Because the conductivity of local water and detergent can vary widely, adjustment of sensitivity is provided to enable you to adjust to your own local conditions and chemicals. The pump adjustment screws are located to the left of the pump and vacuum switches.

The Sensor System is sensitive to two conditions:

PUMP

Two metallic probes are present in the bottom of the solution tank. When approximately one inch or more of cleaning solution is present in the tank, a low voltage current passes between the two probes. If the level of solution drops below this point the current between the probes is interrupted and, as a result, the machine will shut off. The red indicator light under the adjusting screw will also light up indicating that lack of cleaning solution has caused the sensor to operate.

VACUUM

Two metallic probes are located in the bottom of vacuum tank well. In normal machine operation, these probes are dry and no current flows. However, if moisture is present from excess foam or from bucket overflow, low voltage current will flow causing the sensor to shut the machine off. The red indicator light under the adjusting screw will light up indicating that the vacuum chamber is filled.

If the Sensor System shuts off the machine as described above, both Pump and Vacuum are shut down, not just one or the other.

The sensor switch allows the machine to be used to vacuum out the solution tank at the end of a cleaning job. However, care must be exercised that the pump is not operated when the solution tank is being emptied.

The sensor switch may also be used in event of a malfunction of the Sensor System. In that event, care must be exercised to maintain an adequate supply of cleaning solution and not to overflow the waste-water bucket.

SENSOR SYSTEM ADJUSTMENT PROCEDURE

Clockwise rotation of either adjustment screw increases sensitivity. However, remember that for normal operation the Pump Sensor must sense solution and that the Vacuum must not sense water. Also, clear water is not a good electrical conductor. Therefore, always adjust your machine with normal cleaning solution, not plain water.

Step 1. Fill the solution tank with normal cleaning solution. Turn the sensor switch ON.

Step 2. Turn the Pump adjustment fully to the right (clockwise) — maximum sensitivity. Turn the Vacuum adjustment fully to the left (counterclockwise) — minimum sensitivity.

Turn the Pump switch on. The pump motor should now operate.

Step 3. Turn the Pump adjustment slowly to the left (counterclockwise) just to the point that the Sensor System operates (pump shuts off). Then turn back approximately 1/4 turn to the right (clockwise) with the pump running.

Step 4. Place a rag dampened with cleaning solution on top of the two metallic sensors in the well at the bottom of the vacuum tank. Slowly turn the vacuum adjustment to the right just to the point where the sensor operates (pump shuts off).

The Pump and Vacuum sensors are now adjusted.

In actual operation you may wish to increase or decrease the sensitivity of the system, particularly in the vacuum chamber. Make the adjustments in increments no greater than 1/4 turn in order to maintain adequate operation.

CHEMICALS

The ABS plastic used in the tank is suitable for use with most carpet cleaning chemicals. But it is susceptible to chemical attack from some cleaning substances, such as hydrocarbon solvents and chlorinated bleaches. These noncompatible materials are not of the type normally used for carpet cleaning.

The following is a guide to chemicals which are satisfactory and those which must be avoided. Use of unsuitable compounds in the above equipment is, of course, an abuse of the equipment and resulting damage is not covered by warranty.

SUITABLE CHEMICALS

Alkalis
Clorox II Bleach¹
Defoaming Agents
Detergents
Ethylene Glycol
Hydroxides
Oxygen Bleaches
Soaps
Sta-Puf Fabric Softener¹
Vinegar
White Monday Bleach¹

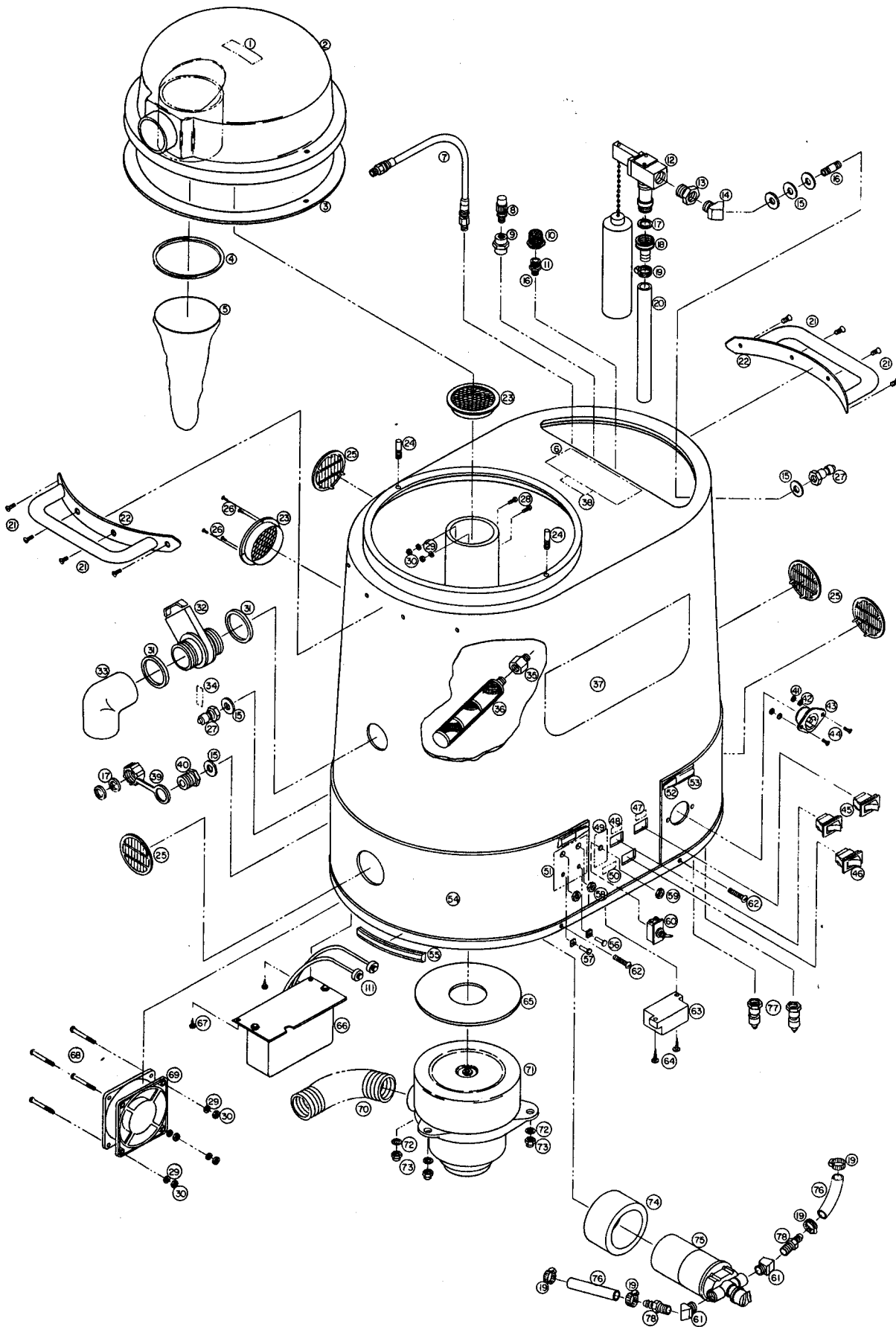
¹Registered Trademark

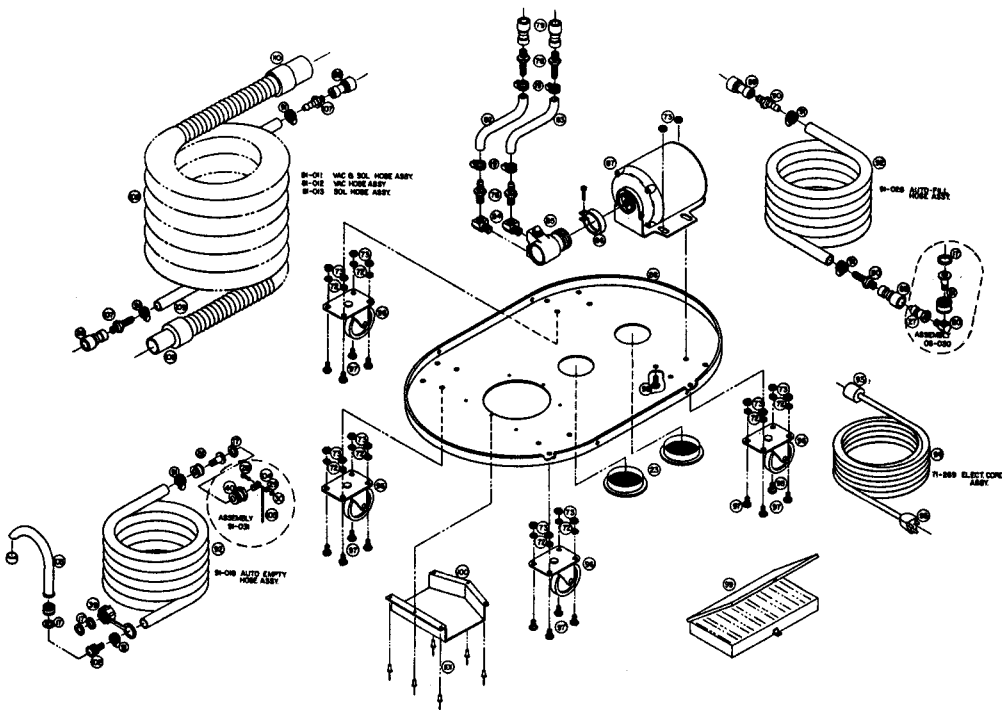
NONCOMPATIBLE CHEMICALS

Aldehydes
Aromatic Hydrocarbons
Butyls
Carbon Tetrachloride
Clorox¹
Chlorinated Bleaches
Chlorinated Hydrocarbons
Lysol¹
Methyls (MEK)
Perchloroethylene (perc)
Phenols
Trichlorethylene

TROUBLESHOOTING CHART

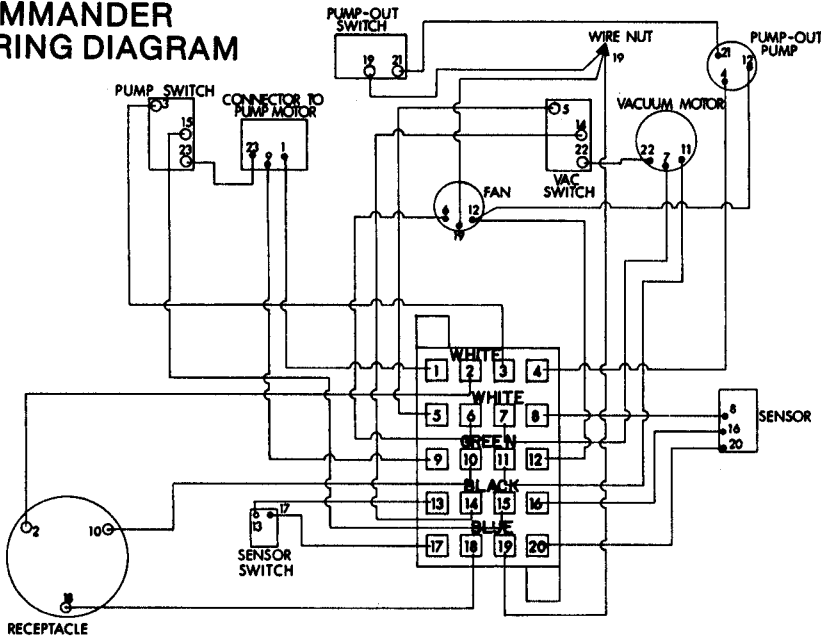
PROBLEM	POSSIBLE CAUSE	SOLUTION
No power to machine.	Bad electrical circuit Power switch failure Faulty electrical cable	Check building circuit breaker or fuse box Replace Replace
Electrical shock.	Equipment not grounded	Use 3 pronged adapter. Be sure ground wire is secured
Motor speed varies or doesn't run.	Motor worn-out	Replace
Loss of vacuum.	Loose vacuum dome Crack in dome or defective glue joint Lint or dirt clogging vacuum screen Loose cuffs on vacuum hose Vacuum motor seals leaking Floor tool vacuum chamber plugged Broken vac hose Damaged dome gasket Worn out vac motor	Enter and seal dome over tank Replace or reseal using acrylic plastic cement only With power off clean screen Tighten cuffs turning counterclockwise Replace Wash out with hose. Check lint out with wire Replace Replace Replace
Hose quick disconnect hard to insert.	Corrosion on fittings	Clean fittings with steel wool. Soak in vinegar solution. Lubricate lightly with silicon lube.
Not getting carpet clean.	Severe soil conditions	Make more than one pass at right angle to first pass
Carpet too wet.	(See listings under loss of vacuum heading)	
Carpet browning.	Leaving carpet too wet Too much chemical in solution Light carpet with no brown prevention	Check vacuum system for loss of vacuum Reduce amount of chemical. Check label directions for proper concentration Go over carpet with brown prevention
Solution problems.	Solution hose quick disconnects Defective or worn out pump	Faulty or plugged. Remove and examine. Replace if necessary Repair or replace
Solution won't shut off.	Faulty floor tool solution valve	Repair or replace





COMMANDER PARTS LIST		
KEY	PART NO.	DESCRIPTION
1	63-035	Decal
2	10-167	Dome
3	55-010	Dome Gasket - 47"
3A	81-027	Dome Assy. (includes # 1, # 2 and # 3)
4	06-027	Retaining Band - Dome Filter
5	06-026	Filter, Dome Intake
6	63-053	Decal, Warning
7	81-028	Hose Assy., CDR-I Internal Pump Out
8	55-025	Valve, Nupro Adj. Bypass
9	55-188	Coupler, 1/4"
10	55-218	Solution Strainer, 3/8 FPT x 40 Mesh
11	55-226	Bushing 3/8 MPT x 1/4 FPT
12	55-396	Valve, Liquid Proportioning
13	55-226	Hex Bushing, 3/8 MPT x 1/4 FPT
14	55-258	St. El 1/4" 45°
15	33-105	Flat Washer
16	55-256	Close Nipple 1/4"
17	50-034	Washer, 3/4" Rubber
18	55-005	Hosebarb, 3/4 FH x 5/8 HB
19	55-317	Hose Clamp 3/4" Dia.
20	55-477	Hose, 5/8 Nylobrade 12" Long
21	33-119	Screw, HHMS 10-32 x 3/4"
22	37-156	Cabinet Handle
23	30-037	Screen, 3" Dia.
24	33-146	Stud, 1/4 - 20 x 2 1/8
25	30-025	Louver, 2 1/2" Dia.
26	33-132	Screw, Self-Tapping 2-56 x 1/4 #F
27	55-192	Nipple, Quick-Disconnect 1/4 FPT
28	33-034	Screw 6 - 32 x 3/4"
29	33-184	Lockwasher, #8
30	33-035	Hex Nut 6 - 32
31	50-014	Gasket, Dump Valve
32	55-323	Dump Valve 1.5" Dia. Slide Type
33	16-188	Elbow, 1 1/2 PFF x Slip PVC
34	63-139	Decal Waste
35	55-292	Adapter 1/2 FPT x 1/4 MPT
36	55-367	Filter 1 1/4 x 6 1/2, 100 Mesh
37	63-043	CDR-I Label
38	63-037	Decal
39	55-004	Cap, 3/4 Hose
40	55-002	Adapter, 3/4 MH x 1/4 FPT
41	33-020	Hex Nut 6 - 32
42	33-056	Lockwasher, #8
43	21-099	Twist Lock Receptacle
43A	21-104	Twist Lock Receptacle (220 Volt)
44	33-120	Screw, 6 - 32 x 1/2
45	21-019	Lighted Rocker Switch
46	21-072	Non-Lighted Rocker Switch
47	63-008	Pump Label
48	63-007	Vacuum Label
49	63-089	Decal, Sensor Switch
50	63-144	Decal, Pump Out Switch
51	63-070	Decal, Sensor
52	69-018	Trim Tip
53	69-011	Blue Trim 6 1/2"
54	75-006MCHD	Machined Cabinet
55	69-011	Blue Trim 7 1/2"
56	21-054YLW	Indicator Light (Yellow Wire)
57	21-054RED	Indicator Light (Red Wire)
58	33-125	Hex Nut, 3/8 - 32
59	33-060-A	Hex Nut, 1/2 - 24
60	21-038	Toggle Switch
61	55-390	St. El. 45° 3/8"
62	33-132	Screw, 1/4 - 20 x 1 RHMS
63	21-073	Terminal Block
64	33-058	Screw, #10 x 3/4 Self-Tapping
65	50-024	Gasket, Vac Motor 7.5 Dia.
66	21-051	Sensor 120V
66A	21-066	Sensor 220V
67	33-110	Screw # 8 x 3/4 Self-Tapping
68	33-200	Screw, 6 - 32 x 2
69	21-110	Cooling Fan 120V
69A	21-144	Cooling Fan 220V
70	55-170	Vac Hose, 12" Long
71	25-036	Vac Motor, 3-Stage 120V
71A	25-037	Vac Motor, 3-Stage 220V
72	33-094	Flat Washer
73	33-033	Lock Nut, 1/4 - 20
74	12-022	Insulation Barrier
75	24-224	Pump Out Pump 120V
75A	24-181	Pump Out Pump 220V
76	55-010	3/8 Nylobrade Hose (12 1/2" Long)
77	55-154	Nipple, 3/8 Straight Through
78	55-231	Hosebarb, 3/8 MPT x 3/8 HB
79	55-180	Coupler, 3/8 FPT Straight Through
80	55-186	St. El. 90° 1/4"
81	55-001	Adapter, 1/4 MPT x 3/4 FH
82	55-010	Nylobrade Hose, 3/4 x 17"
83	55-010	Nylobrade Hose, 3/4 x 14"
84	55-186	St. El. 90° 3/8"
85	24-184	Pump
86	33-156	"V" Band Clamp
87	24-183	Pump Motor 120V
87A	24-182	Pump Motor 220V
88	10-122MCHD	Machined Base
89	55-182	Coupler, 1/4" Quick-Disconnect
90	55-327	Hosebarb, 1/4 MPT x 3/8 HB
91	55-186	Hose Clamp
92	55-010	Nylobrade Hose 3/8 x 50"
93	21-094	Twist Lock Cord End 115V
93A	21-105	Twist Lock Cord End 220V
94	71-269	Electric Cord 14/3
95	21-027	Cord End 3-Wire
96	30-043	Caster
97	33-037	Screw, 1/4 - 20 x 1" HHMS
98	33-039	Screw, 1/4 - 20 x 1 1/4" HHMS
99	55-009	Faucet Adapter Kit
100	10-020MC	Deflector, ABS Machined
101	33-185	Pop Rivet
102	55-002	Adapter, 3/4 MPT x 3/8 HB
103	55-018	Goose Neck
104	33-038	Plug, 1/4 MPT
105	33-017	Jack Chain
106	81-012	Vac Hose, Assy. 2" x 24"
107	55-230	Hosebarb, 1/4 MPT x 1/4 HB
108	55-042	Hose Cuff, 1 1/2 Cuff x 2" Hose
109	55-215	Nylobrade Hose, 1/4 x 25"
110	55-401	Hose Cuff, 2"
111	21-052	Sensor Potentiometer

COMMANDER WIRING DIAGRAM



LIMITED WARRANTY

WINDSOR warrants to the original purchaser that this product is free from defects in workmanship and materials under normal use. WINDSOR will, at its option, repair or replace, without charge, except for transportation costs, parts that fail under normal use and service when operated and maintained in accordance with the applicable operation and maintenance manuals. This warranty does not apply to electrical items whose life is dependent on their use and care, such as cords, switches, hoses, rubber parts, electric motor parts, etc. IN ADDITION to the above warranty, for a period of 5 YEARS WINDSOR will, without charge, either replace or return to working order, at its option, any solution tank that fails as a result of defects in materials or workmanship during normal

service and usage, except for transportation costs. This limited warranty is in lieu of all other warranties expressed or implied, and releases WINDSOR from all other obligations and liabilities. It is applicable only in the U.S.A. and Canada, and is extended only to the original user/purchaser of this product. WINDSOR is not responsible for costs for repairs performed by persons other than those specifically authorized by WINDSOR. This warranty does not apply to damage from transportation, alterations by unauthorized persons, misuse or abuse of the equipment, use of noncompatible chemicals, or damage to property, or loss of income due to malfunctioning of the product.

If a difficulty develops with this machine, you should contact the dealer from whom it was purchased.



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