

ENSIGN



mr. steam

MODEL
ENS.



WINDSOR
INDUSTRIES, INC.
Englewood, CO 80110

INSTRUCTION MANUAL AND PARTS LIST

INSPECTION

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

ELECTRICAL

The ENSIGN 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 could cause serious damage to vac and pump motors. *220-240 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 reduce risk of electrical 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. Set 3.5 gallon recovery bucket in tank well and put vac dome in place, centered, 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 the ENSIGN is 8 gallons. Mix in a nonfoaming cleaning concentrate for use in hot water extraction machines at the proportions 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.

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 pre-spotting. 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.

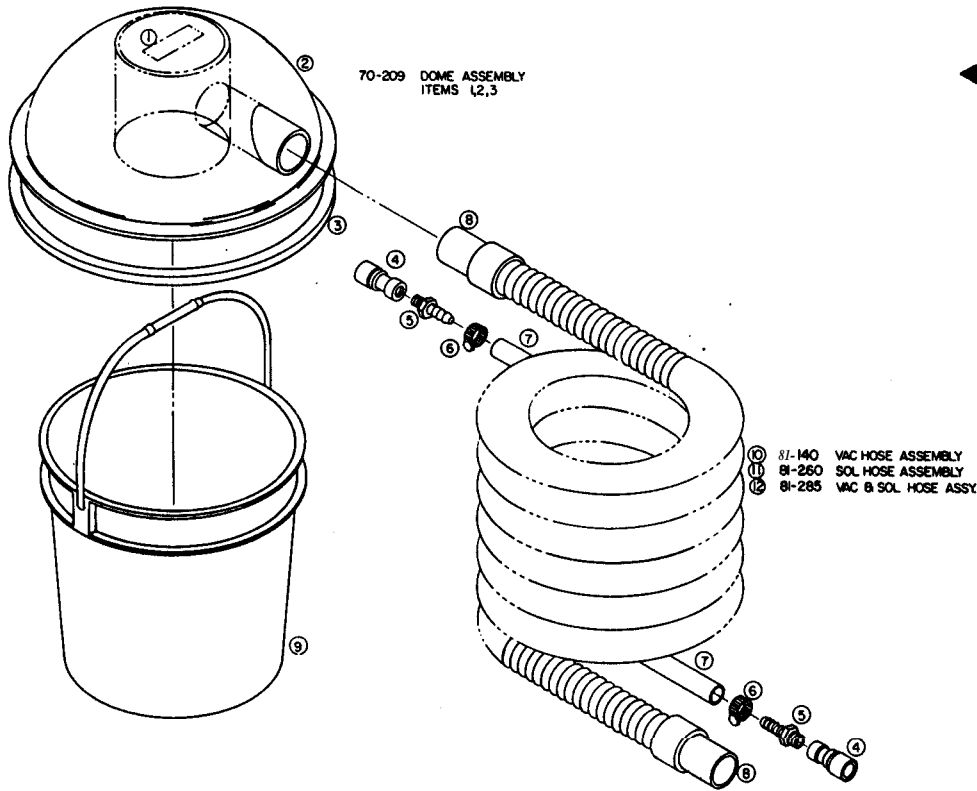
As you work, check to see if there is foam buildup in the recovery bucket. If there is, remove the vacuum hose from the floor tool and add a little defoaming compound while the vacuum is running. Defoamer can be added to the recovery bucket, but never to the solution tank.

WARNING: An overflow of foam into the vacuum motor can cause it to fail! Constantly monitor the level of waste water in the recovery bucket. When about three-quarters full, shut off the machine, remove the dome, take out bucket and empty. Keep the exterior of the bucket dry so no moisture gets into the vacuum chamber. Replace the bucket, center and seal the dome, and continue cleaning.

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.



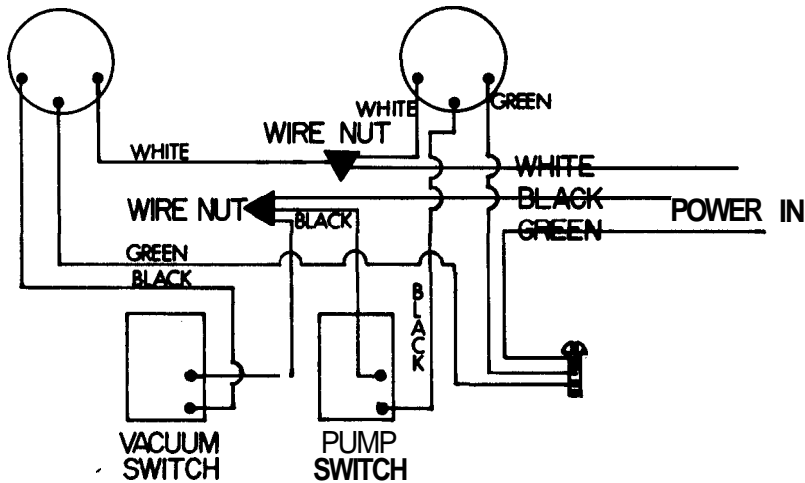
70-209 DOME ASSEMBLY
ITEMS 1,2,3

81-140 VAC HOSE ASSEMBLY
81-260 SOL HOSE ASSEMBLY
81-285 VAC & SOL HOSE ASSY

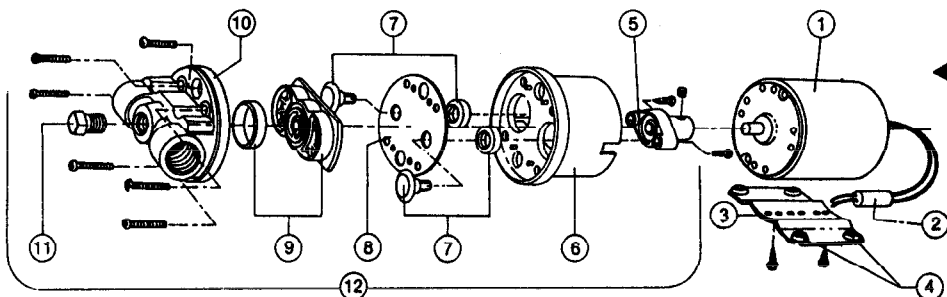
ENSIGN WIRING DIAGRAM

VACUUM MOTOR

PUMP MOTOR



PUMP BREAKDOWN



ENSIGN

KEY	PART NO.	DESCRIPTION
1	63-035	Decal, Dome
2	10-093	Dome, 10C
3	50-022	Dome Gasket
4	55-194	Coupler, 1/4" Quick-Disconnect
5	55-230	Hosebarb 1/4 MPT x 1/4 HB
6	55-196	Hose Clamp, 1/2"
7	55-215	Nvlobrade Hose, 1/4" x 12'
8	55-171	Hose Cuff, 1 1/2"
9	06-111	Bucket, 3 1/2 gal. w/Bail
10	81-140	Vac Hose Assembly
11	81-260	Sol. Hose Assy.
12	81-285	Vac. and Sol. Hose Assy.
13	63-077	Label
14	63-074	Decal
15	63-081	Decal
16	33-013	Hex Nut, 1/4- 20
17	33-094	Fiat Washer, 1/4"
18	30-038	Vac Screen, 1" Dia.
19	69-011	Bumper Strip (6 1/2 ft.)
20	55-218	Solution Strainer
21	55-226	Hex Bushing, 3/8 MPT x 1/4 FPT
22	55-256	Close Nipple, 1/4" Brass
23	33-105	Fiat Washer
24	33-113	Rubber Grommet, 7/16 ID
25	55-229	Elbow
26	55-326	Hosebarb, 3/8 MPT x 1/2 HB
27	55-317	Hose Clamp
28	55-342	Hose
29	81-041	Hose
30	33-019	Screw, 8- 32 x 3/4
31	33-056	Lock Washer, #8 Ext. Tooth
32	33-020	Hex Nut, 8- 32
33	24-182	Pump and Motor
34	50-036	Gasket Kit, Vac Motor
35	25-048	Brush Set, Vac Motor
36	25-068	Vac Motor, 120 Volt
36A	25-067	Vac Motor, 230 Volt
37	12-007	Acoustic Pad
38	12-006	Acoustic Pad
39	21-027	Cord End, 3-wire
40	20-116	Power Cord Assv., 25 ft. 14-3
41	21-080	Spring, Strain Relief
42	21-081	Strain Relief
43	39-003	Griiie
44	33-050	Screw, #8 Self-Tapping
45	21-090	Washer, Strain Relief
46	33-098	Lock Nut, 10- 24 Hex
47	33-094	Washer, 1/4 Fiat
48	50-035	Gasket Kit, Base Seal
49	33-041	Rubber Washer
50	21-092	Cable Clamp
51	33-120	Screw, 8- 32 x 1/2 RHMS
52	33-208	Screw, 6- 32 x 1/2 PHMS Nvion
53	21-072	Switch
54	33-039	Screw, 1/4- 20 x 1%
55	33-069	Washer
56	55-192	Nipple, Quick-Disc., Spg. Loaded
57	33-164	Lock Washer #6
58	33-035	Hex Nut, 6- 32
59	33-094	Washer, 1/4 Fiat
60	33-098	Lock Nut, 10- 24 Hex
61	30-044	Caster
62	33-097	Screw, 10- 24 x 1 HHMS
63	10-055MCHD	Base, ABS MCHD
64	21-016	Electrical Box
65	15-002	Solution Cabinet Assv.

PUMP PARTS LIST

24-182	Pump & Motor
1	24-197 Motor - 115 Volt
2	24-199 Rectifier
3	24-200 Plate, Motor Housing
4	24-201 Grommet (set of 4)
5,7,8,9	24-232 Kit, Pump Repair (2000-549Pump)
6	24-203 Bearing Cover
10	24-208 Pump Housing
11	33-038 Pipe Plug, 1/4" Brass
12	24-231 Pump Complete (2000-549)

TROUBLE SHOOTING CHART

PROBLEM	POSSIBLE CAUSE	SOLUTION
no power to machine.	Dead electrical circuit. Power switch failure. Faulty electrical cable	Check building circuit breaker or fuse box Replace Replace
electrical shock.	Equipment not grounded.	On 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	Center and seal dome over tank Replace or reseal using acrylic plastic cement only With power off clean screen Tighten cuffs turning counterclockwise Replace Replace Replace Wash out with hose Pick 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 brown/np.	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 browning prevent solution only
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

LIMITED WARRANTY

WINDSOR warrants to the original purchaser/user that this product is free from defects in workmanship and materials under normal use and service for a period of one year from date of purchase. 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 instruction manuals. This warranty does not apply to normal wear, or to items whose life is dependent on their use and care, such as cords, switches, hoses, rubber parts, electric motor parts, etc.

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.

DAILY MAINTENANCE

- Vacuum surplus solution from solution tank into recovery bucket.
- At the end of every working day, flush entire pumping system, including floor tool, hand tools, etc. with 1 to 3 gallons of clean hot water.
- Check vac intake screens in recovery tank well. Remove any lint buildup.
- Inspect solution filter in solution tank. Filter screen can be cleaned by washing under hot water faucet.
- Lubricate quick disconnect hose fitting with silicone lubricant. Do not use petroleum based lubricants as they will cause damage to the "O" rings.
- Check spray nozzles frequently. If they become clogged, remove them, wash thoroughly 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 repairs. Do not remove the four screws from the bottom of the recovery tank. Removal will break the seal between the solution and recovery tanks and will require major repairs.

- Lay the machine on its side. Remove two 1/4" hex nuts located about two-thirds of the way back from front in a recessed well on the bottom side of the base assembly.
- Turn machine upright on its wheels.
- Lift cabinet assembly by its handles to separate solution cabinet from the base. Use a screwdriver to pry the sections apart, if necessary.
- Lay cabinet assembly on its side. use a box or carton the height of the base assembly to rest the top section on.

VACUUM MOTOR

- To remove vacuum motor, disconnect wires and the cord tie-down.
- Lift out vac motor, being careful not to damage seals.
- To inspect brushes, remove brush hold-down clamp. 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

To remove pump, disconnect wires, hoses and cord tie-down, and remove four screws holding pump to base.

To Inspect Or Repair Pump:

Refer to pump parts drawing in manual.

CAUTION: The pump suction cover is a nylon material and care should be taken when installing brass fittings not to cross-thread the fittings as this will result in leaking connections.

ELECTRIC BOX

To gain access to electrical components, four screws must be removed; two each on each side of the electrical box cover. Remove box to expose switches and electrical connections.

IMPORTANT: Ground wires are attached to the electrical box with ground screw.

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.

SUITABLE CHEMICALS

Alkalis
Clorox II Bleach'
Defoaming Agents
Detergents
Ethylene Glycol
Hydroxides
Oxygen Bleaches
Soaps
Sta-Puf Fabric Softener'
Vinegar
White Monday Bleach'
'Registered Trademark

NONCOMPATIBLE CHEMICALS

Aldehydes
Aromatic Hydrocarbons
Butyls
Carbon Tetrachloride
Clorox'
Chlorinated Bleaches
Chlorinated Hydrocarbons
Lysol*
Methyls (MEK)
Perchloroethylene (perc)
Phenols
Trichlorethylene