

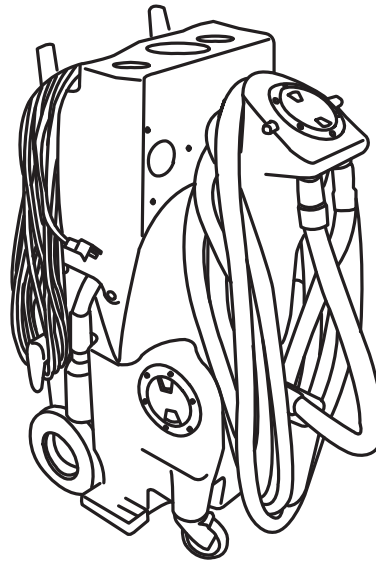


Kai·Ra·Te™

All-Floor Cleaning™

Patent Pending

Operator and Parts Manual



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INSTALL DATE
Please fill out card for future records
Install date- _____
Serial No.- _____

Read this manual prior to operation.
This machine will operate at its optimal efficiency if:

- The machine is operated as described in this manual
- The machine is maintained properly and regularly-per maintenance instructions.
- The machine is maintained with manufacturer parts only.

Carefully unpack and inspect you new Kai•Ra•Te cleaning machine for shipping damage. Each unit is tested and thoroughly inspected before shipping. For instructions regarding shipping damage, contact Kaivac, Inc. immediately. All returns must have a Return Authorization Number (RAN).

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Introduction

INSPECTION

Carefully unpack and inspect your new Kai•Ra•Te cleaning machine for shipping damage. Each unit is tested and thoroughly inspected before shipping. For instructions regarding any shipping damage, contact Kaivac immediately. All returns must have a Return Authorization Number (RAN).

WARNINGS

- **DO NOT** operate with a frayed, worn or damaged electrical cord.
- **DO NOT** use to pick up flammable or combustible materials.
- **DO NOT** run the pump without water in the water tank.
- **DO NOT** use hot water.
- **DO NOT** remove float shutoff.
- **ALWAYS** test chemicals for compatibility on surfaces to be cleaned.

GROUNDING INSTRUCTIONS

THE KAI•RA•TE MUST BE GROUNDED. If it should malfunction or stop working, grounding provides a path of least resistance for electrical current, thereby reducing the risk of electrical shock. The Kai•Ra•Te is also supplied with a ground fault circuit interrupter (GFCI) to reduce danger of electric shock. It must be maintained and tested regularly. This unit is equipped with a cord that has an equipment grounding conductor and a grounding plug. The plug must be inserted in an appropriate outlet that is properly installed and grounded in accordance with all local codes and ordinances. Cutting off the ground wire or using a cord that is not equipped with a ground plug will void the warranty on the unit, and Kaivac will accept NO responsibility associated with the unit.

Improper connection of the equipment grounding connector conductor can result in a risk of electrical shock. Check with a qualified electrician or service person if you doubt the outlet is properly grounded. Do not modify the plug provided with the Kai•Ra•Te. If it will not fit the outlet, have a proper outlet installed by a qualified electrician.

Safety Precautions

- **Equipment Warning**
 - Read all instructions to ensure safe operation of the Kai•Ra•Te.
- **Training**
 - Proper training is required before using the Kai•Ra•Te. Contact your authorized Kaivac distributor for training information.
 - Instruction placards are attached to each Kai•Ra•Te and should not be removed. These placards show proper cleaning procedures and safety precautions.
- **Equipment Use**
 - Do not use the equipment in a manner that it was not intended for by the manufacturer.
 - See OPERATING PROCEDURES section for proper use of the equipment.
- **Spray Gun**
 - Never point the spray gun at people.
- **Prevention of Electrocutation**
 - Use the ground fault circuit interrupter (GFCI) with the Kai•Ra•Te at all times.
 - Test the GFCI before each use.
 - Do not spray liquid from the Kai•Ra•Te onto electrical outlets or on any electrical devices.
- **Personal Protection**
 - Wear gloves, eye protection and ear protection when operating the Kai•Ra•Te.
- **Prevention of Water Damage to Buildings**
 - The Kai•Ra•Te is to be used on water-resistant building surfaces only. These include concrete, terrazzo, ceramic tile and quarry tile.
 - The Kai•Ra•Te may be used for stripping on vinyl-composite tile floors, but daily cleaning of resilient flooring using the Kai•Ra•Te is not recommended.
 - Never overflow the water tank or the vacuum recovery tank.
 - Discontinue use if any leaks occur in the Kai•Ra•Te.
- **Machine Integrity**
 - Do not run the pump dry. This will void the machine warranty.
 - Do not run hot water through the pump. This can cause pump cavitation and will void the warranty.
 - Always be sure the water tank and water line filters are clear of debris. Running the pump with clogged filters can cause pump damage.
 - Replace any damaged cords before use.
 - Replace any damaged hoses before use.

SAVE THESE INSTRUCTIONS
Violation of any of these instructions may void any and all warranties

Limited Warranty Protection Plan

The Kai•Ra•Te has been engineered and tested to provide long lasting performance. This warranty covers defects in workmanship or materials under normal use and service from the date of purchase.

Kai•Ra•Te warranties the following components to be free from defects in materials and workmanship for these time periods:

- 1.) KaiChem Warranty for end users who use only Kaivac chemicals for the life of the machine.**
 - 5 years on rotationally molded parts
 - 3 years on other parts (excluding wear items)
 - 1 year on labor
- 2.) Standard Warranty (For approved non-Kaivac chemicals)**
 - 1 year parts and labor
- 3.) No Warranty**
 - Chemicals that have not been approved by Kaivac.
Please call Kaivac to check.

All Kai•Ra•Te replacement parts are guaranteed for 90 days from the date of installation. Normal wear items such as wheels, hoses, seals, gaskets, cords, casters, squeegees and GFCI are excluded from warranty coverage.

All warranty claims must be accompanied by a Return Authorization Number (RAN), which is available by calling the Kaivac Customer Service Department. No returns will be accepted without a RAN.

This warranty does not apply to return freight costs, damage or defect caused by accident, negligence, misuse, fire or repair done by anyone other than a Kaivac authorized repair center. In no event shall Kaivac, Incorporated be liable for incidental or consequential damages, or any damages to persons or property.

Please Note: Under no circumstances will the seller be liable for any loss, damage, expenses or consequential damages arising in connection with the use or inability to use seller's product. Kaivac, Incorporated reserves the right to make changes or improvements to its equipment without notice. Some states do not allow the exclusion or limitation of incidental or consequential damages. This warranty is in lieu of any other warranty expressed or implied, including any implied or merchantability for a particular purpose otherwise.

- **Chemical Use**

- Only use chemicals approved for use with the Kai•Ra•Te. Use of non-Kaivac Chemicals may cause machine damage and will reduce warranty periods.
- Turn Chemical line off when not in use.
- Keep the appropriate chemical MSDS sheets on hand at all times.
- Cleaning chemicals should not be put in the water tank (with the exception of KaiDri in small amounts). Chemicals in the water tank can harm operator and machine because:
 - Chemicals in the water tank must pass through the pump, which may cause premature pump failure. Use of chemicals in the water tank voids the warranty.
 - Chemicals in the water tank will be aerosolized and may harm the operator.

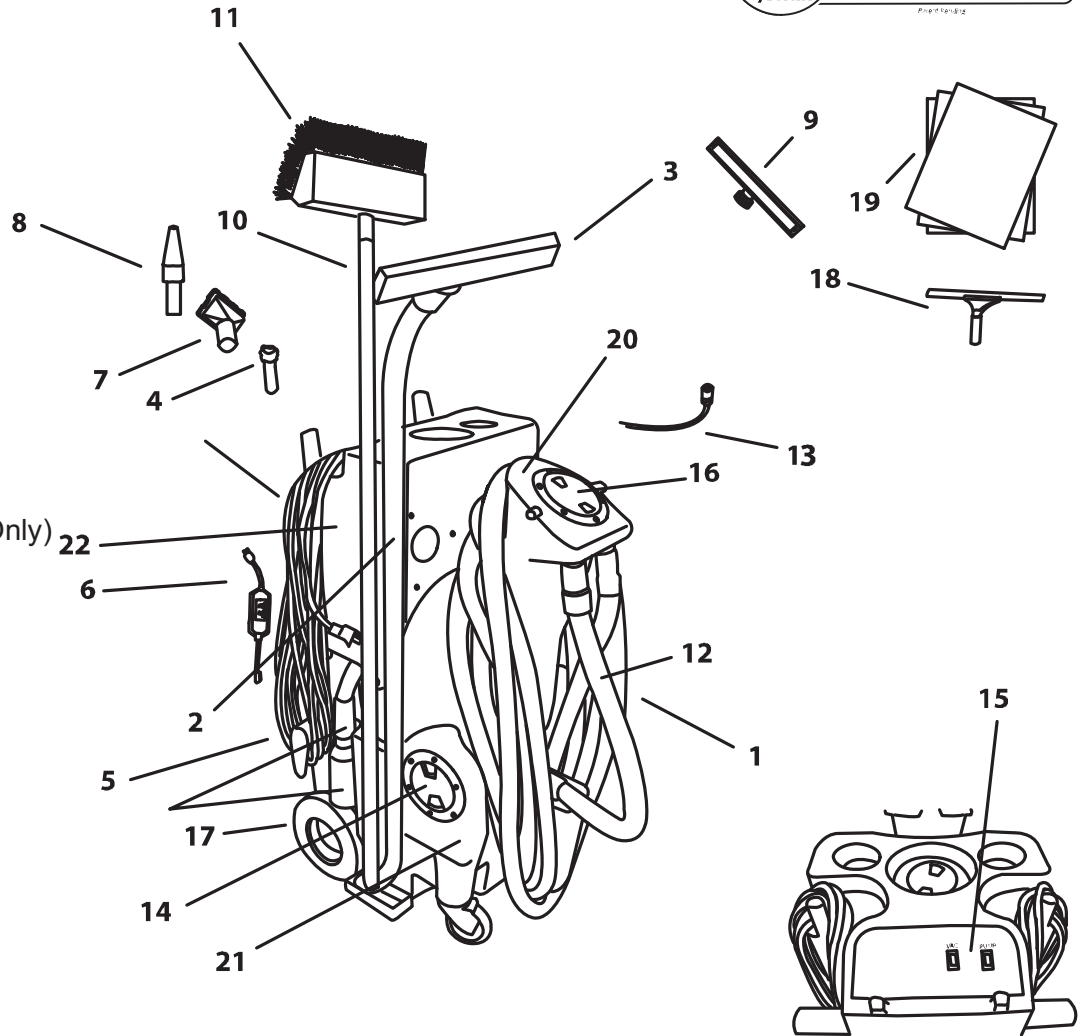
- **Electrical**

- Do not pull the Kai•Ra•Te by the cord or use the cord as a handle.
- Do not close a door on the cord or pull the cord around sharp edges or corners.
- Do not run over the cord.
- Keep the cord away from heated surfaces.
- Do not pull on the cord to unplug. Grasp the plug at the outlet and pull.
- Turn off the unit before unplugging.
- Connect to a properly grounded outlet only.

MACHINE COMPONENTS



- 1: 33' Vac Hose
- 2: Vac Wand
- 3: Squeegee Head
- 4: Fill Hose
- 5: Electrical Cord
- 6: GFCI
- 7: Gulper Tool
- 8: Blow Nozzle
- 9: Squeegee W/Brushes
- 10: Brush Handle
- 11: Deck Brush
- 12: Dump Hose
- 13: Pressure Hose (Plus Only)
- 14: Water Tank Lid
- 15: Vac & Pump Switch
- 16: Vac Lid
- 17: 8" Pneumatic Wheel
- 18: Window Squeegee
- 19: Placards
- 20: Vac Tank
- 21: Water Tank
- 22: Components Lid



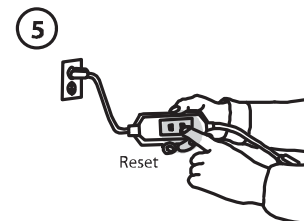
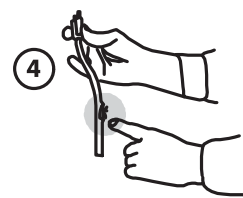
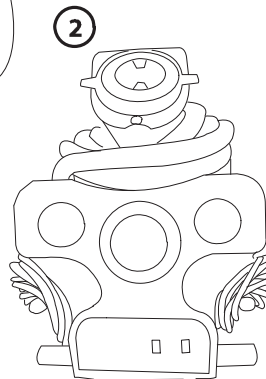
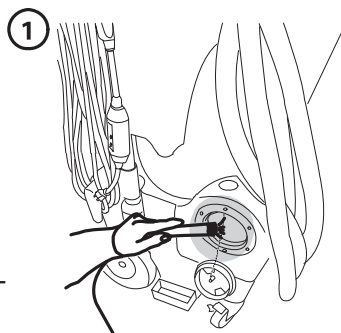
MACHINE PREPARATION

1. Fill with clean cool water.

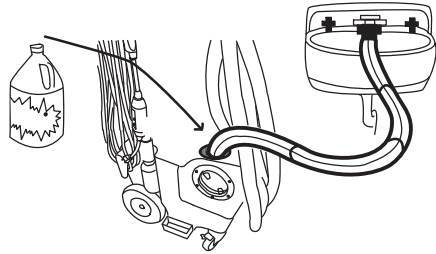
2. Check machine for all tools and supplies needed to complete task.

3. Check all hoses and spray lines for damage prior to starting job. If damage is found do not continue until proper repairs are completed.

4. Test GFCI (Ground Fault Circuit Interrupter) to ensure it is working properly. You are now ready.



OPERATING PROCEDURES



Fill tank with water and cleaning solution.



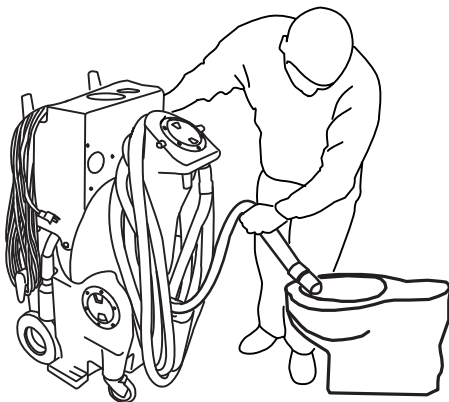
Open spigot and apply solution to floor.



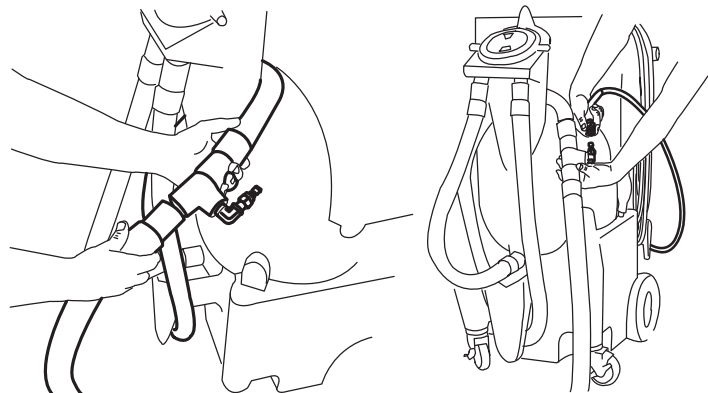
Scrub floor and grout lines with brush.



Plug machine in, turn on vac motor and wet vac floor.



Dump dirty water from recovery tank into appropriate drain.



When extracting dry soils make sure all Dry-Vac connections are secure and pressure line is connected.
(Kai-Ra-Te PLUS ONLY)



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 **CAUTION**

Always make sure machine is unplugged before lifting electrical cover assembly

Area

Procedure

Floor Squeegee	<ul style="list-style-type: none"> * Check condition of rubber squeegee blades and wheels on the floor tool. Rough floor surfaces will cause the blades and wheels to wear out more quickly. Replace as necessary.
Pressure Hoses	<ul style="list-style-type: none"> * Wipe clean after each use. * Check for cuts or frays in the hose jacket, particularly at the end of the fittings. Replace hose if cuts are found.
Water Filter	<ul style="list-style-type: none"> * Check filter screens for debris and clean as needed. Be careful not to crush the end of the filter screens when replacing. * Check the clear filter bowl cover to be sure it is tight. * Check for leaks around filter and filter connections.
Water Tank	<ul style="list-style-type: none"> * Check condition of filter in water tank. Clean as needed. * Empty the water tank to prevent mildew and bacteria growth. Empty tank by dipping the vacuum hose into the water tank, and transferring the water to the vacuum tank.
Vacuum Tank	<ul style="list-style-type: none"> * Empty and flush vacuum tank. * Clean and disinfect. * Check the float shut-off screen to be sure it is not plugged up. A plugged filter screen restricts airflow and results in reduced suction.
Leaks	<ul style="list-style-type: none"> * Be alert for leaks around hoses, fittings, water lines, tanks or elsewhere. Discontinue use until leaks are repaired.
Wet / Dry Converter (Plus Only)	<ul style="list-style-type: none"> * Check connections for leaks. * Check and flush hose with clean water. * Check hose for damage.

TROUBLESHOOTING



Kai-Ra-Te
All-Floor Cleaning™
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CAUTION

Always make sure machine is unplugged before lifting electrical cover assembly

AREA	PROBLEM	POSSIBLE CAUSE	REMEDY
Electrical	No power to pump or vac motor.	<ol style="list-style-type: none"> 1. Machine not plugged in. 2. Switch not "on." 3. GFCI tripped. 4. Building circuit overloaded. 5. Switch wires loose. 6. Terminal block connections loose. 	<ol style="list-style-type: none"> 1. Plug machine in. 2. Check switches for "on." 3. Test and reset GFCI. 4. Check and reset circuit. 5. Disconnect power and check for loose wire. 6. Disconnect power and check for loose wire.
	Electrical burning smell.	<ol style="list-style-type: none"> 1. Vac motor brushes worn. 2. Vac motor hung up. 3. Pump motor hung up. 	<ol style="list-style-type: none"> 1. Replace vac motor brushes. 2. Remove vac motor and repair. 3. Release pressure on hose and jog pump switch, or replace
Vacuum System	No / Weak vacuum.	<ol style="list-style-type: none"> 1. Vac tank full. 2. Squeegee blades or wheels worn. 3. Float shutoff screen dirty. 4. Float ball stuck. 5. Damaged hose. 6. Dump hose plug missing. 7. Access lid not tight. 8. Vacuum hose plugged. 9. Too much liquid in vac hose. 10. Vac hose still wrapped. 11. Muffler plugged. 12. Leak in vac tank. 	<ol style="list-style-type: none"> 1. Empty vac tank. 2. Replace wheels or blades and check periodically. 3. Wipe off float screen to clean. 4. Tap float and release / clean. 5. Cut and repair / replace. 6. Contact dealer and replace. 7. Tighten lid hand tight. 8. Flush hose to remove debris. 9. Allow air in when vacuuming. 10. Unwrap vac hose fully. 11. Remove padding and clean. 12. If repairable, clean and dry affected area and seal with silicone.
	Moisture from exhaust.	<ol style="list-style-type: none"> 1. Vac tank full. 2. Float shutoff missing. 3. Excessive foam in vac tank. 	<ol style="list-style-type: none"> 1. Dump vac tank. 2. Replace. 3. Use defoamer.
Blow Dry System	No air flow.	<ol style="list-style-type: none"> 1. Hose disconnected. 	<ol style="list-style-type: none"> 1. Reconnect hose.
	Moisture from nozzle.	<ol style="list-style-type: none"> 1. Water in blow hose. 	<ol style="list-style-type: none"> 1. Dry blow line.
	Suction not blow action.	<ol style="list-style-type: none"> 1. Vacuum hose connected to vac tank. 	<ol style="list-style-type: none"> 1. Reconnect to vac motor exhaust hose.



CAUTION

Always make sure machine is unplugged before lifting electrical cover assembly

Area	Problem	Possible Cause	Remedy
High Pressure System	No water from pump or low pressure.	<ol style="list-style-type: none"> 1. Out of water. 2. Gun nozzle plugged. 3. Air in pump (vapor lock). 4. Gun orifice missing. 5. Tank filter plugged. 6. In-line bowl filter plugged. 7. Bowl filter lid loose. 8. Pressure hose damaged. 9. Quick disconnect leaking. 10. Injector plugged. 11. Pulse hose damaged. 12. Regulator failed. 13. Hose kinked. 14. Seals in pump need replaced. 	<ol style="list-style-type: none"> 1. Fill water tank. 2. Remove orifice with allen wrench and clean. 3. Use power prime technique. 4. Replace orifice. 5. Clean tank and filter. 6. Remove filter cover and clean. 7. Gently tighten bowl cover. 8. Repair or replace. 9. Tighten or replace. 10. Using an air line or equal blow small bursts of air into affected chemical line. 11. Repair or replace. 12. Replace. 13. Unkink and check for damage. 14. Remove and replace seals.
	Bad fan pattern or pinpoint pattern on gun.	<ol style="list-style-type: none"> 1. Debris in nozzle. 2. Orifice damaged. 	<ol style="list-style-type: none"> 1. Remove orifice with allen wrench and clean. 2. Remove and replace.



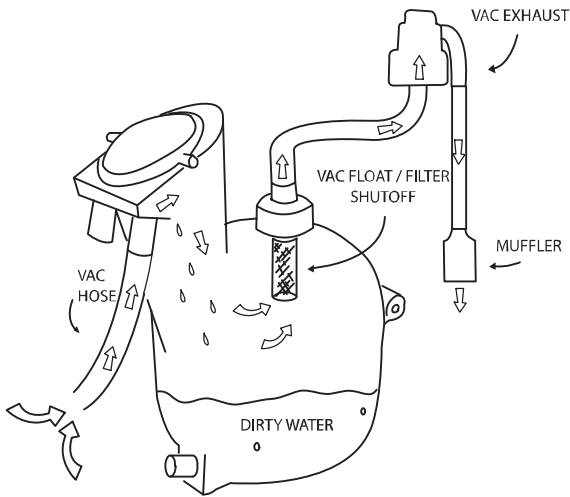
CAUTION

Always make sure machine is unplugged before lifting electrical cover assembly

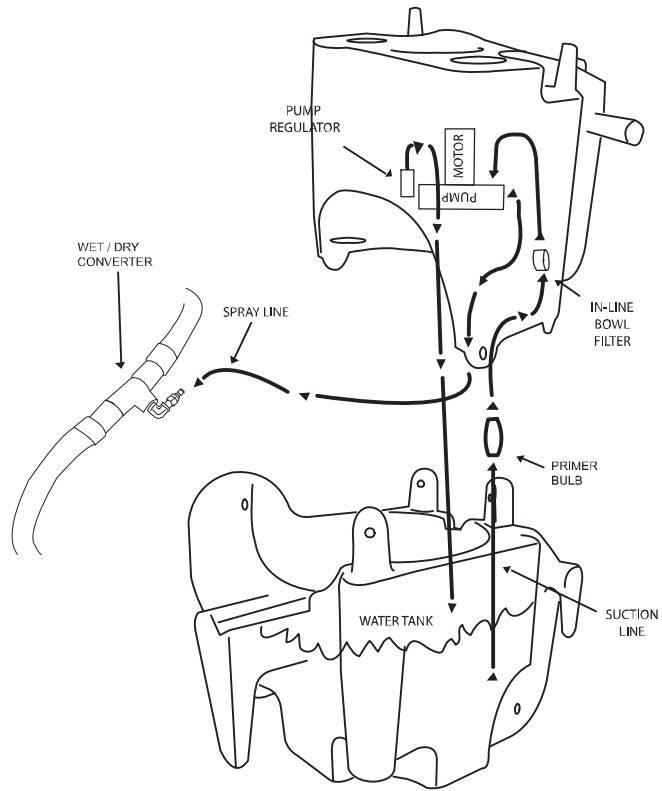
AREA	PROBLEM	POSSIBLE CAUSE	REMEDY
Dump System	Dump hose will not empty tank.	<ol style="list-style-type: none"> 1. Dump hose plug not removed. 2. Clog in bottom of tank. 	<ol style="list-style-type: none"> 1. Remove plug. 2. Tip dump contents, remove debris.
	Dump hose leaks.	<ol style="list-style-type: none"> 1. Hose cut. 2. Clamp loose. 3. Dump plug bushing missing. 4. Plug missing. 	<ol style="list-style-type: none"> 1. If leak is less than 4" from tank side, cut and reattach, or replace. 2. Tighten hose clamp. 3. Replace bushing. 4. Replace plug.
Wheels and Casters	Wheels won't roll, or they rub.	<ol style="list-style-type: none"> 1. Flat tires. 2. Debris wrapped around axle. 3. Bearings tight. 4. Wheels too loose on axle. 5. Bearings falling out. 	<ol style="list-style-type: none"> 1. Inflate tires to 30 psi. 2. Check for debris on axle. 3. Grease bearings. 4. Remove wheel, add washers to take up slack. 5. Refer to remedy 4.
Squeegee Head	Floor streaks.	<ol style="list-style-type: none"> 1. Worn blades or wheels. 	<ol style="list-style-type: none"> 1. Replace wheels and / or blades.
	Squeegee head doesn't easily rotate when installed on wand.	<ol style="list-style-type: none"> 1. Brass ring on wand not in groove. 2. Coupling nut too tight. 	<ol style="list-style-type: none"> 1. Loosen coupling nut and reposition head on groove. 2. Loosen 1/2 turn.
	Head won't stay on wand.	<ol style="list-style-type: none"> 1. Coupling nut cracked. 2. Brass ring worn. 	<ol style="list-style-type: none"> 1. Replace. 2. Replace.
	Premature blade wear.	<ol style="list-style-type: none"> 1. Squeegee wheels worn. 	<ol style="list-style-type: none"> 1. Check wheels for wear / replace.
	Sucks to the floor too tightly.	<ol style="list-style-type: none"> 1. Squeegee wheels worn. 	<ol style="list-style-type: none"> 1. Check wheels for wear / replace.

FLOW DIAGRAM

VACUUM SYSTEM

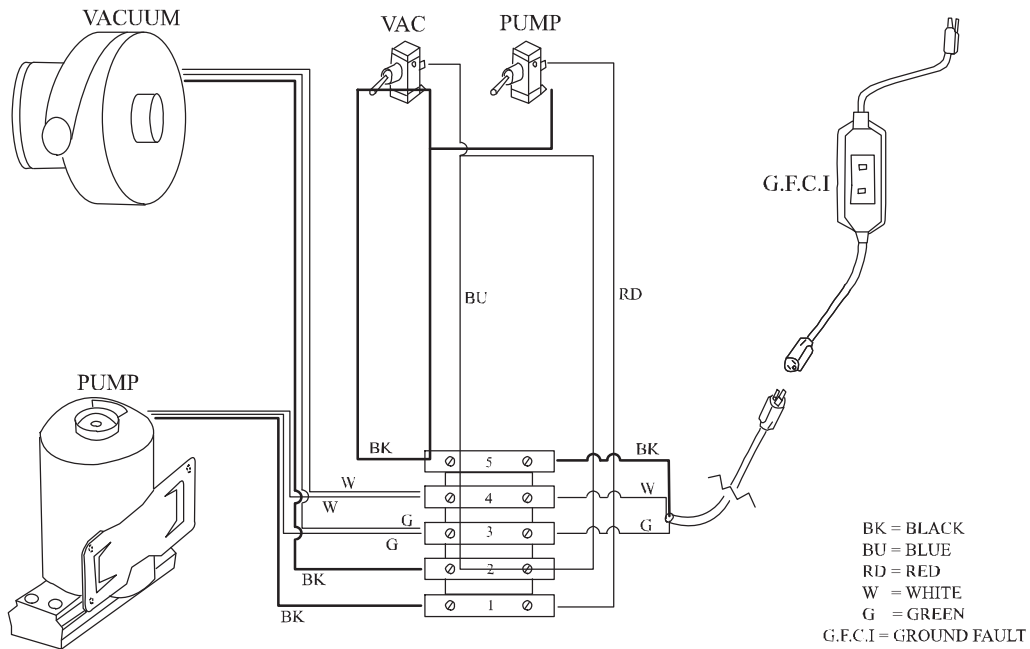


LIQUID SYSTEM (PLUS MODEL ONLY)



ELECTRICAL DIAGRAM

* PUMP MOTOR SWITCH ON KAIRATE PLUS ONLY



BK = BLACK
 BU = BLUE
 RD = RED
 W = WHITE
 G = GREEN
 G.F.C.I. = GROUND FAULT
 CIRCUIT INTERRUPTER

KAIVAC WIRING DIAGRAM
 12/99

Kai•Ra•Te Accessories



KaiBlooley - A powerful descaler detergent. The KaiBlooley chemistry combines low foam with a blend of fast acting acids to descale mineral deposits and soap scum in showers and restrooms.



KaiPow - An amazing non-butyl degreaser. KaiPow's chemistry rapidly penetrates oils, grease, fats, and soils.



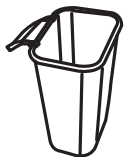
KaiDri - Water spot eliminator. KaiDri wipes out hard water spots before they get started. Its special chemistry helps water to sheet off of any hard surface.



KaiSan - A hospital grade broad-spectrum disinfectant that can be used in restrooms, hallways and with finished floors. With a neutral pH, it will not attack floor finish.



KaiO - Combines citrus d-limonene with hydrogen peroxide to make an environmentally friendly, multipurpose, pH neutral cleaner that is safe for personnel and building surfaces.



KaiCan - Optional storage container that attaches to equipment.



KaiMotion - Say goodbye to underutilized, complicated, expensive autoscrubbers. Kaivac's Fast Ergo-Cleaning System will revolutionize floor and hard-surface cleaning forever. With its ergonomic design and simple process, workers will speed through cleaning chores in one-third the time - while using up to 90% less chemical.

#	PART #	PART DESCRIPTION
		WATER TANK FIG. #1
1	KZ001	WATER TANK
2	CFS02	CASTERS
3	CFS11A	19" SST AXLE 5/8
4	CSS46	5/8 WASHERS
5	KW0145	8" PNEUMATIC WITH 5/8 HUB
6	CSS28	COTTER PINS
7	CSS43	5/8 PUSH CAP NUT
8	KW003	SMALL BECKSON LID
9	CSS17A	BECKSON LID SCREWS
10	CSS88	1/4 X 3/4 BOLT
11	CSS44	1/4" WASHER
12	MUFPAD	MUFFLER PAD
13	CSS75	1/4 X 3 1/2" MUFFLER BOLT
14	CSS44	1/4" WASHER
15	CSS14	# 13 BECKSON CLIP
16	CSS17	SQUARE DRIVE SCREW
17	CSS91	3/8 X 2 1/4 SST BOLT
18	CSS57	3/8 X 3/4 SST BOLT
19	KMB16	3/8 WASHERS
		VAC TANK FIG.#2
20	KZ002	NEW VAC TANK
21	KW003	SMALL BECKSON LID
22	CSS17A	BECKSON LID SCREWS
23	DHKWIZ	KAIWHIZ DUMP HOSE
24	CVS08A	DUMP HOSE CUFF
25	CSS21	DUMP HOSE CLAMP
26	SUBFLK	FLOAT
		COVER FIG.#3
27	KZ003	COVER
28	CVS01	VAC MOTOR
29	.5DHWIZ	VAC INLET LINE
30	CSS21	CLAMP
31	.5MUFPAD	MUF PAD
32	CSS09	1/4 X 5 1/2 BOLT
33	CSS77	1/4 X 2 1/2 BOLT
34	CSS44	1/4" WASHERS
35	CSS	1/4" NYLOC NUTS
36	SUBMFK	EXHAUST HOSE
37	CSS17A	EXHAUST RETAINER SCREW
38	CES10	TERMINAL BLOCK
39	CSS17B	TERMINAL BLOCK SCREW
40	CSS08	PUMP MOUNT NUTS *PLUS ONLY

