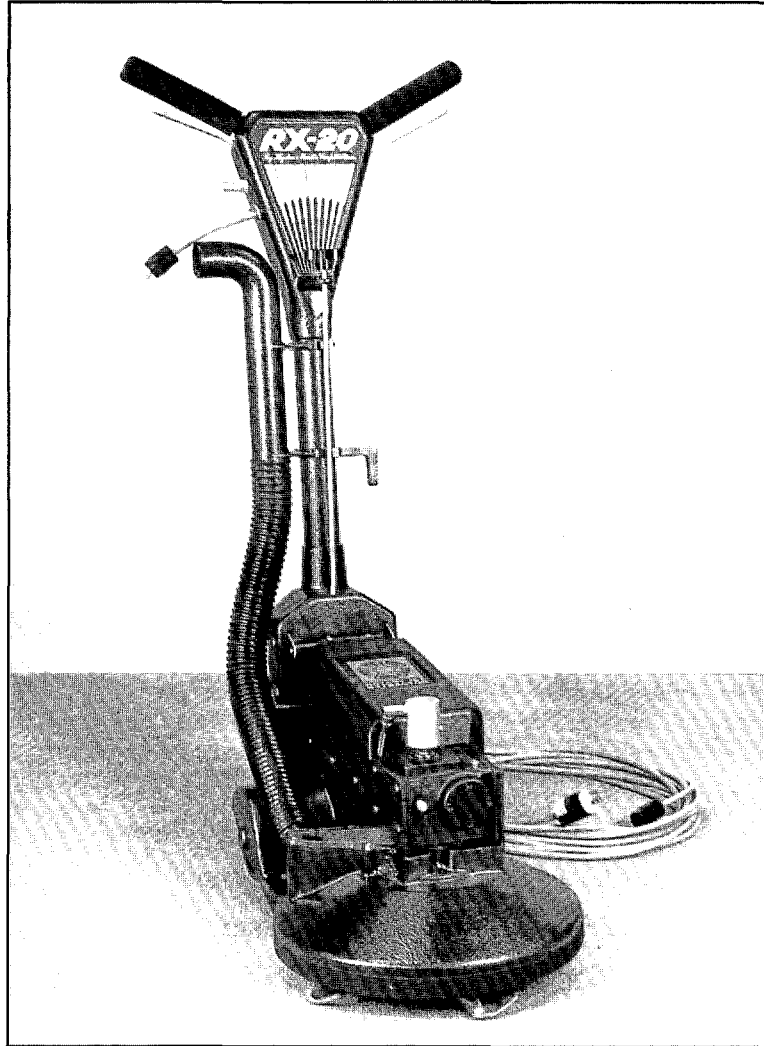


RX-20

ROTARY JET EXTRACTOR™



OWNER/ OPERATION MANUAL

HYDRAMASTER®
Corporation

20309-64th Ave. W. • Lynnwood, WA 98036

CONGRATULATIONS

*You now own a piece of equipment that incorporates the latest in carpet cleaning technology with features that will almost certainly increase the productivity of yourself and your business, while decreasing the fatigue factor that may have prevented you from going after some of the large cleaning jobs that are available to carpet cleaners and maintenance professionals today. With competition as strong as it is in most communities, you have invested in not only a cleaning tool, but a marketing tool that will enhance your professional image in every way. The RX-20 is **REVOLUTIONARY**, and your foresight in purchasing this **ultimate***

"cleaning machine" will be rewarded with the knowledge that you care enough to give your customer the maximum cleaning process available.

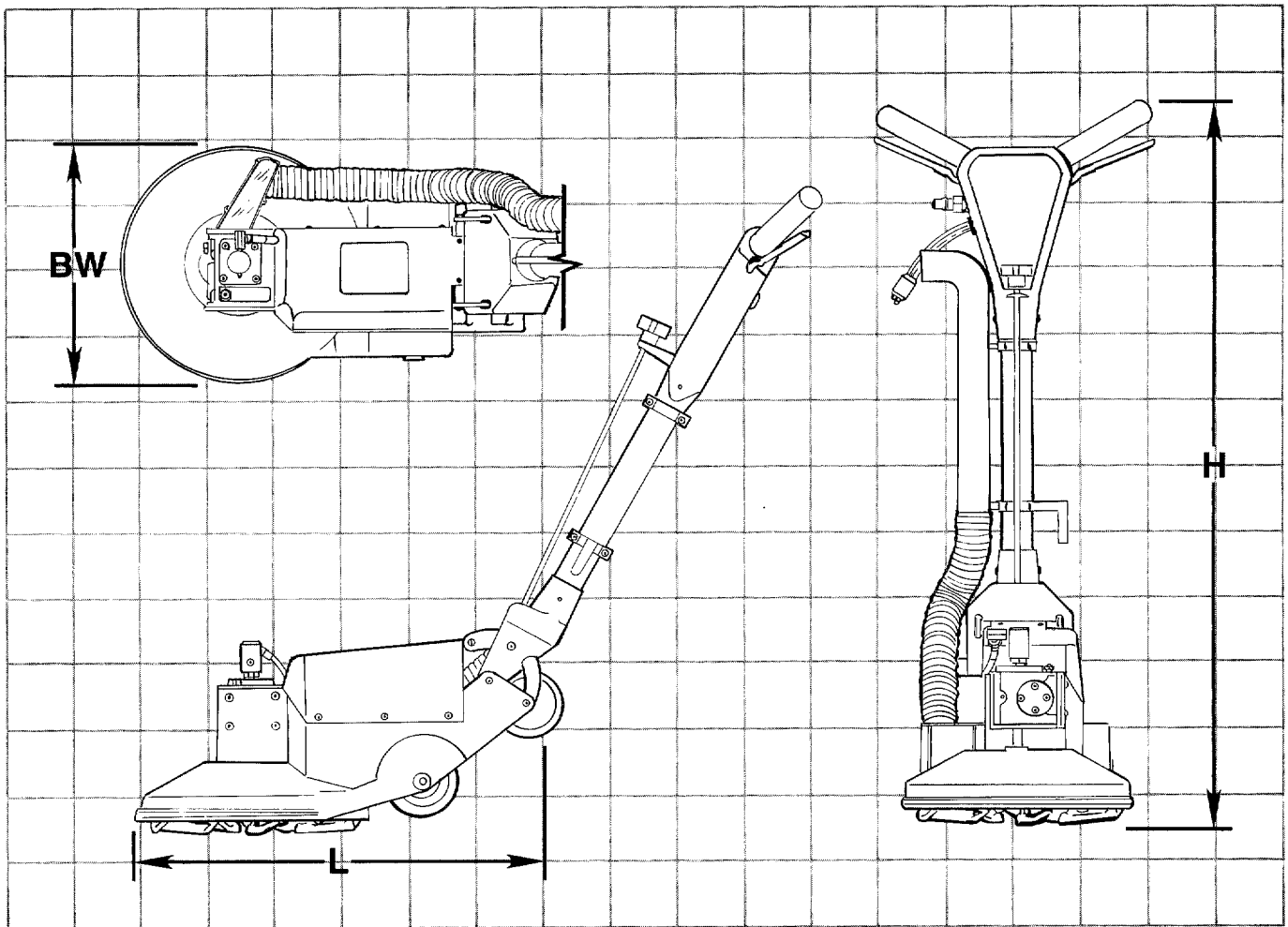
*Using the RX-20 in your business will turn you into a professional carpet cleaning **OPERATOR**, rather than a professional **LABORER**.*

*Once again, congratulations to another cleaning professional who won't wait for tomorrow, and won't have to compete **against** the RX-20 - the competition will have to **try** and compete with you!*

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RX-20 ROTARY JET EXTRACTOR™

AN EVOLUTION THAT HAD TO HAPPEN

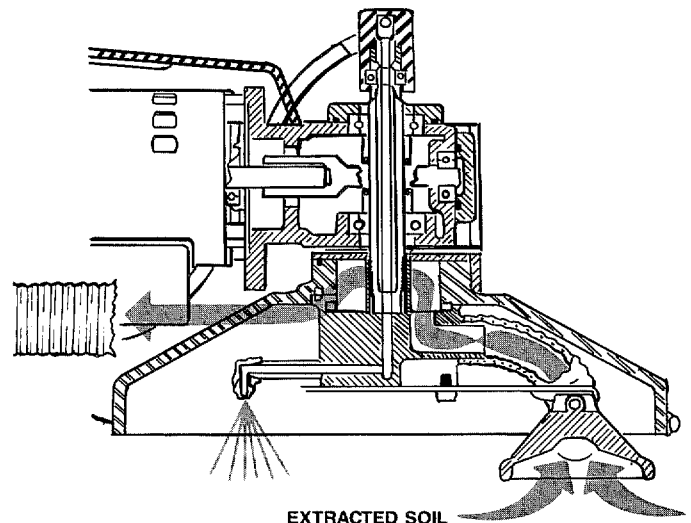
Your new RX-20 has been precision engineered to bring you to the state-of-the-art in carpet cleaning. In the past, a wand operator had to supply all the pressure and motion to do the cleaning. The RX-20's weight distribution and rotary motion enable the operator to maneuver the unit easily with less fatigue and without back strain.

The RX-20's electric motor drives its precision transmission which in turn rotates the star assembly at 90 rpm. Cleaning solution is injected through the center of the gearbox shaft directly to the five spray jets. Soiled solution is then extracted from the carpet by five cleaning heads and drawn through the aluminum exhaust manifold to your cleaning system's recovery tank.

NOTE: The operating temperature and pressure of the cleaning solution as well as the vacuum power depends entirely on the type of cleaning system you use.

CONSTRUCTION

Base, exhaust manifolds, handle and gearbox housing are all sand-cast aluminum. Cleaning heads and rotating hub are cast stainless steel. Other parts are either metal or high impact plastic.

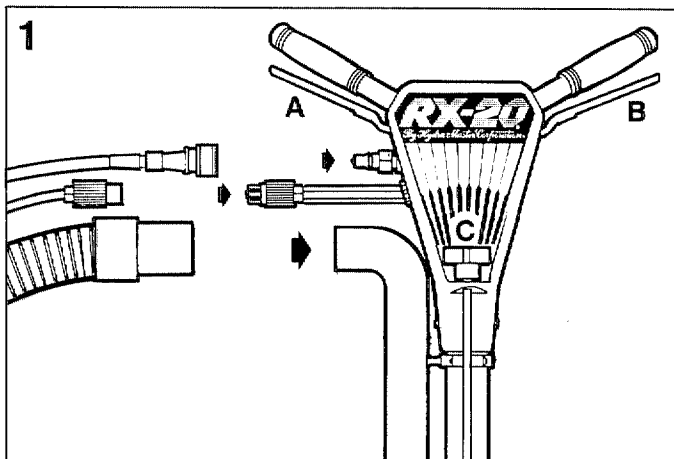


SPECIFICATIONS AND CAPACITIES

LENGTH	27 in.
BASE WIDTH	15 in.
HEIGHT	45 in.
WEIGHT	88 lbs.
MOTOR	115 v 1/2 hp.
GEARBOX	1725 rpm input, 90 rpm output
OIL CAPACITY	14 oz.

PREPARING YOUR RX-20 FOR OPERATION

- 1. REMOVE PACKAGING:** Carefully lay your RX-20 on its side and remove the styrofoam block which surrounds the cleaning head. **CAUTION:** Do not attempt to operate your RX-20 while it is on its side. Damage to the unit may result.
- 2. HANDLE ADJUSTMENT:** Your RX-20 has been shipped fully assembled with the adjustable handle in its full upright position. After the packaging has been removed, loosen the adjustment knob located just below the handle grips (knob C in illustration 1, turn counter-clockwise to loosen, clockwise to tighten). Adjust the handle to a comfortable height. Several adjustments may be needed before a desirable operating position is found. **NOTE:** Most operators have found better control and less fatigue when the handle is in a low position just around the hip line. There is an ideal position for each person which will ensure the RX-20 will do the work instead of you.
- 3. SOLUTION AND VACUUM HOSE HOOKUPS:** Your RX-20 is equipped with a 440 male quick connect for the solution hose hookup, and a 2 in. O.D. vacuum hose inlet (Refer to illustration 1). A solution hose with a 440 female quick connect is required. The vacuum inlet requires a 2 in. I.D. vacuum hose for proper air flow with a truck mounted system. **IMPORTANT:** The vacuum hose must be in good condition to ensure maximum airflow. If you do not have a 440 female quick connect and cannot find it locally, it can be ordered from the Hydra-Master Parts Department. Call (206)775-7276 and request part # 052-051 (440 Q.C.).
- 4. ELECTRICAL CORD HOOK UP:** The 50 ft. electrical cord on your RX-20 is a detachable, 3-prong grounded line requiring a 3-prong, 15 amp. receptacle. A 3-prong to 2-prong adapter may be used providing its ground wire is properly attached to a grounded terminal. **CAUTION: DO NOT, UNDER ANY CIRCUMSTANCES, REMOVE THE GROUND PRONG FROM YOUR RX-20 POWER CORD—SERIOUS INJURY OR DEATH MAY RESULT.** To connect the power cord to the unit, insert the male twist-lock plug (from the unit) into the female end (on the power cord) and twist until they are securely locked together (see illustration 1).



OPERATING YOUR RX-20

- 1. CONTROL FUNCTIONS:** There are control triggers located on each side of the handle under the rubber hand grips (see illustration 1). As you operate the RX-20, trigger A, on your right hand side, controls the electric motor that drives the cleaning heads. On the left hand side, trigger B controls the high pressure solution spray. The vacuum remains on constantly while the RX-20 is in operation.

- 2. MANEUVERING YOUR RX-20:** Your RX-20 maneuvers like a rotary floor machine (see illustration 2).

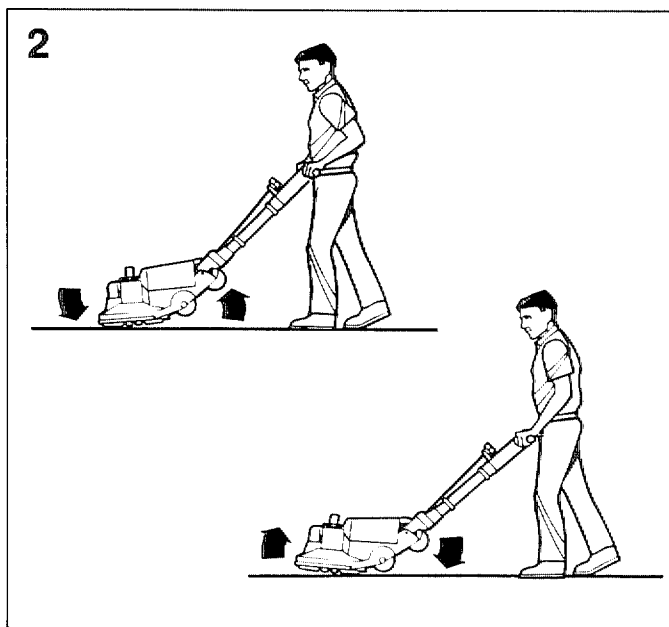
To move the RX-20 to the RIGHT, lift the left handle slightly.

To move it to the LEFT, push down on the left handle slightly.

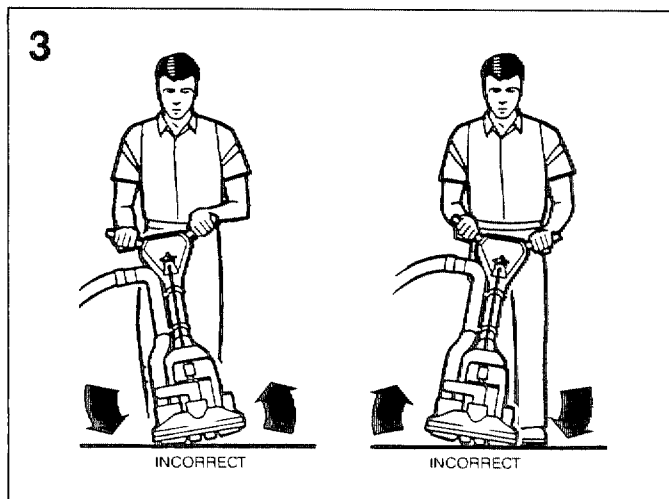
The more you lift or lower the handle, the faster the RX-20 will move. To move forward and backward, position the handle so that the unit remains stationary, then push forward or pull back.

To familiarize yourself with your RX-20, practice on an open carpeted area. Depress both the solution trigger and motor trigger and move the RX-20 SLOWLY in a 3 to 5 ft. arc, as shown in the cleaning patterns below. **CAUTION:** Do not operate your RX-20 on dry carpets. The friction generated by the revolving cleaning heads may damage fibers in the carpet.

Once you have become familiar with the speed and movement of the machine, practice making it hover in one spot. (The hovering maneuver is useful for removing stubborn stains, as well as removing furniture indentations).



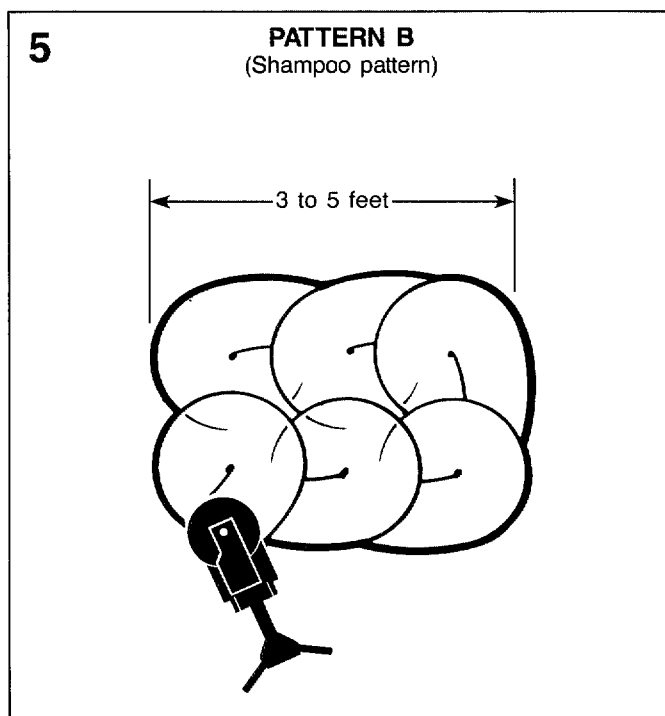
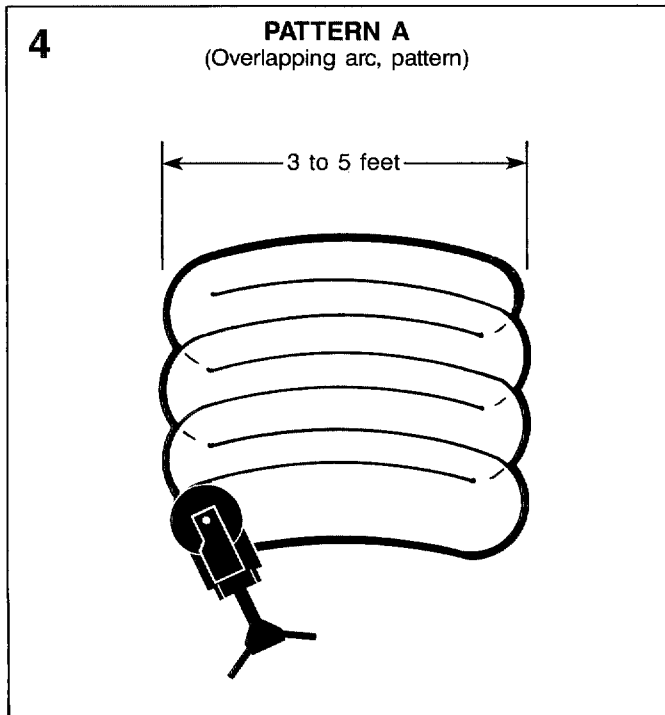
Do not tilt machine sideways while moving forward and backward. A loss of control may result in damage to the unit or location (see illustration 3).



RX-20 CLEANING PATTERNS

For regular carpet cleaning, use **Pattern A** (see illustration 4) three times over the same area—two passes with solution on and one pass for drying. When shampooing carpets, first use **Pattern B**, (see illustration 5) applying shampoo in a circular motion, then use **Pattern A** to dry the area. (**NOTE: Dirtiest areas may require 2 or more cleaning passes.**) Using either pattern, you should develop a comfortable **rhythm**. To obtain maximum performance from your RX-20 move it **slowly** and **deliberately** with 50% overlap, giving it time to clean and extract (*unlike a manual wand, the RX-20 is doing the work you had to do in the past*). A steady pace rather than a frenzied one will increase efficiency and production and decrease fatigue.

Always overlap passes about 50%



THE FOLLOWING CAUTIONS SHOULD BE OBSERVED WHILE CLEANING WITH YOUR RX-20:

- DO NOT** operate your RX-20 over metal floor moldings. Damage to both the molding and the cleaning head will result.
- DO NOT** operate your RX-20 on hardwood floors.
- DO NOT** operate your RX-20 over loose or unraveled carpet seams. The cleaning head may catch and cause further damage.
- DO NOT** operate your RX-20 on concrete floors. It will develop sharp edges on the extraction heads that will damage carpet fibers.
- DO NOT** clean over the edge of a loose carpet. Instead, clean only up to the edge. Damage may occur should the extraction heads catch the loose carpet.

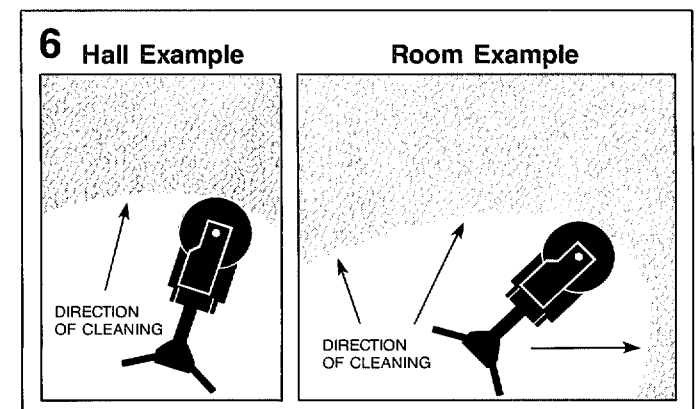
SPECIAL INFORMATION

During the cleaning of some plush carpets you may notice a "pilling" effect. With an RX-20, loose yarns form balls and are kicked aside as the cleaning heads revolve. This is normal when aggressive cleaning or even normal vacuuming takes place, as evidenced by a number of dead, loose yarns in the vacuum cleaner bag. These loose yarns, in most cases, are short staple yarns or filler yarns used to give the carpet a denser appearance. Because your RX-20 weighs approximately 90 lbs. and rests on 5 four inch cleaning heads, the yarns are not sucked up into the vacuum heads as they are with a vacuum cleaner or old-style cleaning wand.

CAUTION: On older, rubber backed, glued down carpets that may be delaminating with age, the RX-20 may cause further delamination. When in doubt, **DO NOT** use your RX-20.

CLEANING HINTS

- A. Most cleaners customarily clean their way **out** of an area or room. With the RX-20, it is possible to clean **into** an area or room so that the hoses are dragged behind you during the cleaning process, rather than kicked out of the way as you back out of an area. (*The "cleaning into" method works especially well in hallways or confined areas, see illustration 6.*)



- B. The RX-20 is a very aggressive carpet cleaning powerhead and will leave the carpet with a freshly-washed appearance. The carpet should be brushed or groomed after the cleaning process to remove any swirl marks left behind.

The RX-20 has been very successful in restoring badly matted traffic lanes in front of doorways and sofas. Even pivot areas can be brought back to life again, in most cases. "Corroding" in hallways can also be eliminated with minimal effort.

RX-20 MAINTENANCE

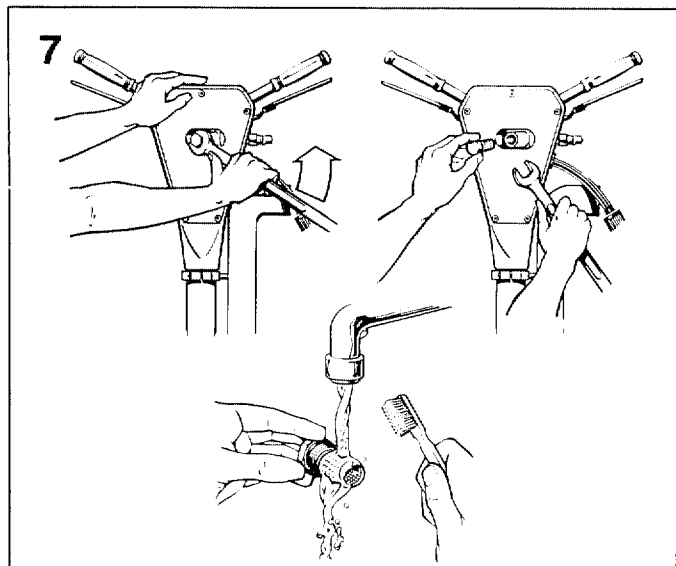
Good care and regular maintenance of your RX-20 will result in a long, dependable life of the unit. Keep in mind that your RX-20 will be in full view of your customer; therefore an RX-20 that is dirty and unkempt in appearance can cause your image to suffer. Because you are offering your customer the latest in cleaning technology, it is equally important that your company image also reflect your desire to give your customer THE BEST.

The surface finish on your RX-20 is a durable, baked on epoxy coating and is easily cleaned with a damp cloth. To further protect the finish, a light coat of a good silicon base polish should be applied periodically.

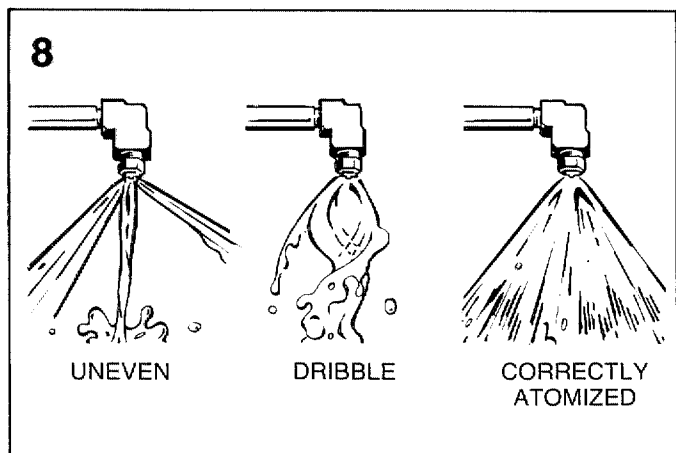
Lubrication and maintenance play a key role in the life of your RX-20; therefore, the following daily and periodic maintenance steps must be followed. Train yourself to maintain your unit on a regular schedule until it becomes habitual.

DAILY:

1. **Inspect power cord** for cuts, breaks, etc. Repair as needed.
2. **Visually inspect your RX-20** for water leaks, damage to the cleaning heads, etc. Repair as necessary.
3. **Remove in-line solution filter screen** (see illustrations 7) by unscrewing the 7/8 in. hex nut protruding from the back of the handle—as shown below. Rinse under water to remove debris. If necessary, use a toothbrush to remove stubborn particles.

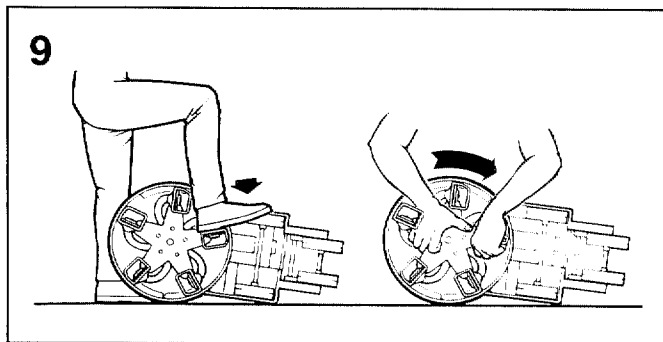


4. **Check jet spray for evenness.** An uneven spray will cause improper flow of the cleaning solution (see illustration 8).

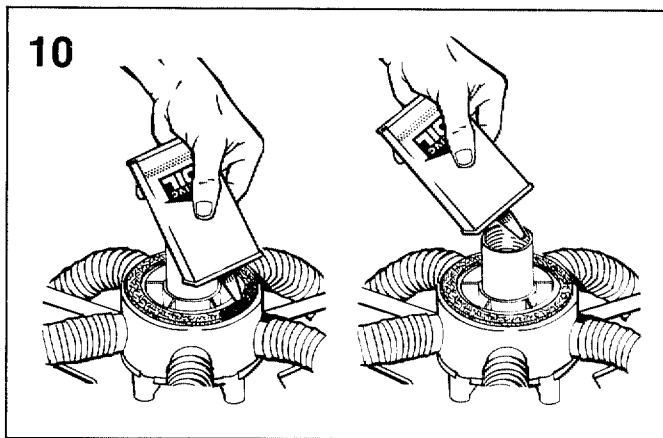


5. **Inspect vacuum hoses** for breaks or tears. Repair or replace as necessary.

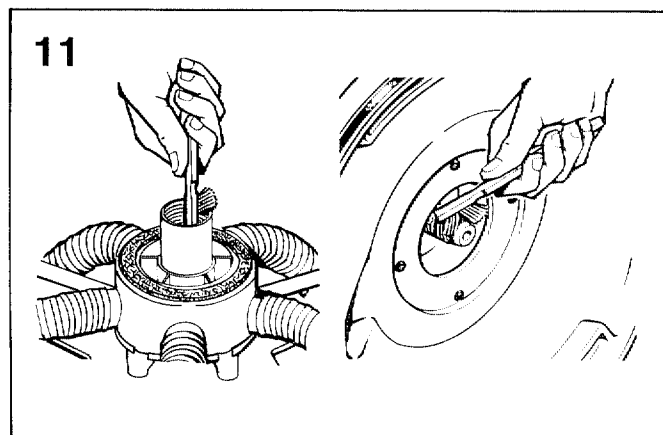
6. **Remove the cleaning head** by giving it a sharp blow with the heel of your shoe against the rear of the vacuum head (see illustrations 9). The cleaning head unscrews in the same direction it turns during operation (or clockwise when looking at it from the underside). Once you have loosened the assembly, spin it off with your hands. Wash the cleaning heads and shroud assembly with a garden hose, being careful not to wet the electric motor assembly. Clean any lint build-up from the cleaning heads and vacuum hoses (lint build-up will restrict proper airflow and prolong drying time).



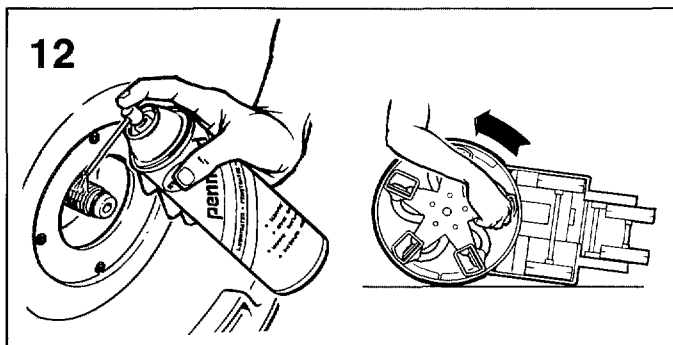
7. **Lubricate the felt vacuum seal** on top of the hub with a quality, 30 weight SAE motor oil. Also, put a few drops into the hub threads as shown (see illustration 10).



8. **Clean any debris** that may have accumulated on the gearbox shaft or the inside threaded bore of the hub (see illustration 11).

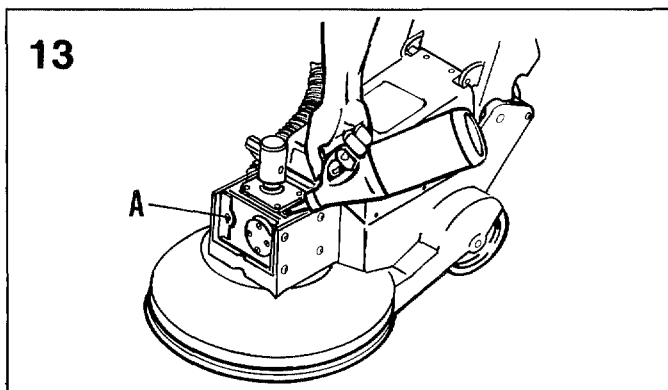


9. **Coat the shaft** with PENNZ-GUARD or a similar lubricant. Reinstall the vacuum head assembly onto the shaft by rotating it counter-clockwise (see illustration 12).



IMPORTANT: While rotating the vacuum head assembly in the counter-clockwise position, make sure that it spins freely all the way down. If it begins to require the slightest finger tip pressure, unscrew it and brush off the threads. All it takes is the slightest grain of dirt or sand to obstruct the threads. If you turn too far onto a grain of dirt, the hub may become locked onto the shaft of the gearbox.

10. **Check oil in the gearbox.** Change oil in the gearbox every 100 hours. Use 80-90 weight gear oil to reduce friction and allow the gearbox to run at a cooler temperature. Drain oil, then fill with new oil at the oil port on top of the gearbox until it dribbles out of the inspection port A (see illustration 13). **NOTE:** When checking or changing the oil, the unit must be on a level surface.



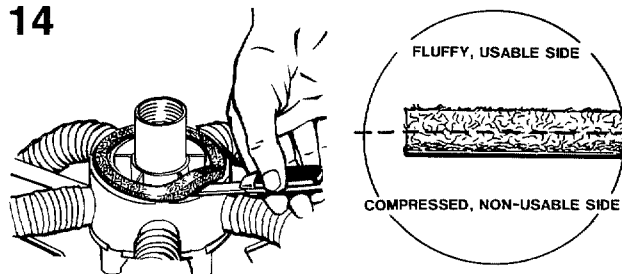
NOTE: Normal wear and tear on your new gearbox will cause small amounts of metal splinters to rub loose during the first 10 hours of use; therefore, we recommend that you change the oil after 10 hours (then every 100 hours after that).

REMOVAL OF COMPONENTS

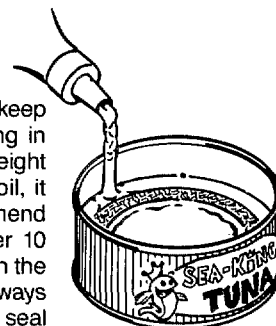
FELT VACUUM SEAL REPLACEMENT: A worn or unlubricated seal will not form a proper seal which will impair the vacuuming capabilities of the unit and result in carpets being left wetter than is desirable.

First, remove vacuum head assembly as previously described. Using a pocket knife, carefully pry the seal up and lift it out (see illustrations 14). If the seal appears worn or glazed so that it won't lubricate well, try turning it over. If that doesn't work, or if it is damaged, replace it with a new one. Press seal in place and saturate it with a quality 30 weight SAE motor oil. This seal and its condition play an important part in the optimum performance of your RX-20.

14



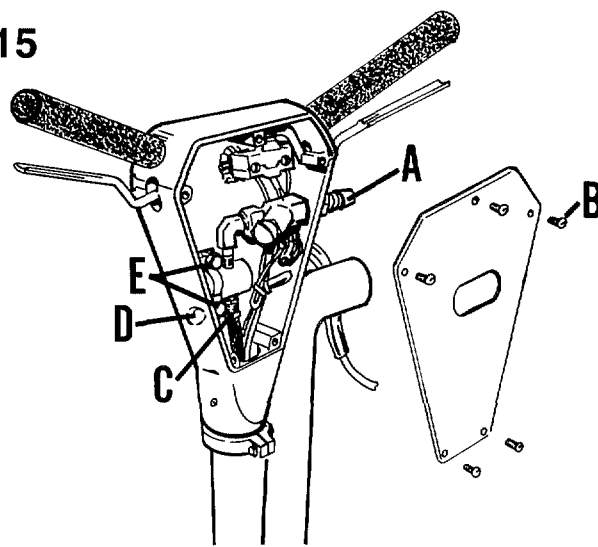
HELPFUL HINT: Always keep your spare felt seal soaking in a tuna fish can with 30 weight oil. By soaking the felt in oil, it will fluff up. We recommend changing the felt seal after 10 hours of use. Replace it with the spare soaked seal and always place the flattened used seal back in the oil bath.



HIGH PRESSURE VALVE ASSEMBLY: The valve assembly's moving parts will eventually wear out in time. Its repair or replacement is a relatively simple operation (see illustration 15).

- Remove 440 male quick connect with a wrench.
- Remove the 5 allen head screws in the back plate on the handle and lift back panel off.
- Disconnect the stainless steel hose from bottom of the valve assembly.
- Remove the bolt holding the trigger.
- Remove the two bolts holding the valve assembly in handle and pull out.

15



The valve may now be rebuilt or replaced. **CAUTION:** If the valve has been frozen, inspect it for leakage before reinstalling the back plate.

FREEZE WARNING AND PROTECTION

Your RX-20 can sustain damage from freezing, as can any equipment that functions with the use of water. Care must be taken to protect this tool from freezing just as you do your other equipment. To protect it from freezing, simply blow air from a gas station air hose through the solution quick connect with the valve open. This will blow all water from the valve, solution line, rotary union and jet assembly. Open and close valve several times to ensure that all water is removed.

PARTS AND ASSEMBLIES

Hydra-Master has every part in stock. For parts ordering or servicing call:

PARTS DEPT.	SERVICE DEPT.
(206) 775-7276	(206) 775-7275

CHECK FOR A REGISTERED HYDRA-MASTER SERVICE CENTER IN YOUR AREA.

AVAILABLE SERVICE KITS

KIT NO.

078-019	Solution Valve Kit
078-065	Rotary Union Repair Kit

HOURS:

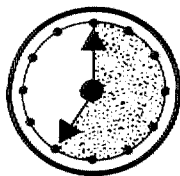
MONDAY THROUGH FRIDAY

7:00 AM TO 6:00 PM

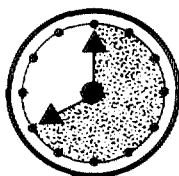
PACIFIC STANDARD TIME

TELEPHONE NUMBERS

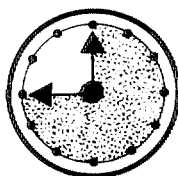
GENERAL OFFICES:	(206) 775-7272
PARTS DEPT:	(206) 775-7276
SERVICE/WARRANTY:	(206) 775-7275
NEW EQUIPMENT SALES AND MARKETING:	1-800-426-1301



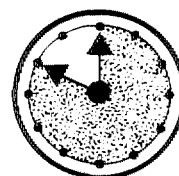
PST



ROCK MT.



CENTRAL



EASTERN

LIMITED WARRANTY

HYDRA-MASTER warrants to the original purchaser/user that this product is unconditionally guaranteed free from defects in workmanship and materials under normal use and service for a period of 1 year. HYDRA-MASTER 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 Instruction Manual. This warranty does not apply to normal wear or to items whose life is dependent on their use and care.

This warranty is in lieu of all other warranties, expressed or implied, and releases HYDRA-MASTER from all other obligations and liabilities. It is ap-

plicable only in the U.S.A. and Canada, and is extended only to the original user/purchaser of this product. HYDRA-MASTER is not responsible for costs for repairs performed by persons other than those specifically authorized by HYDRA-MASTER. 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 or loss of income due to malfunctioning of the product.

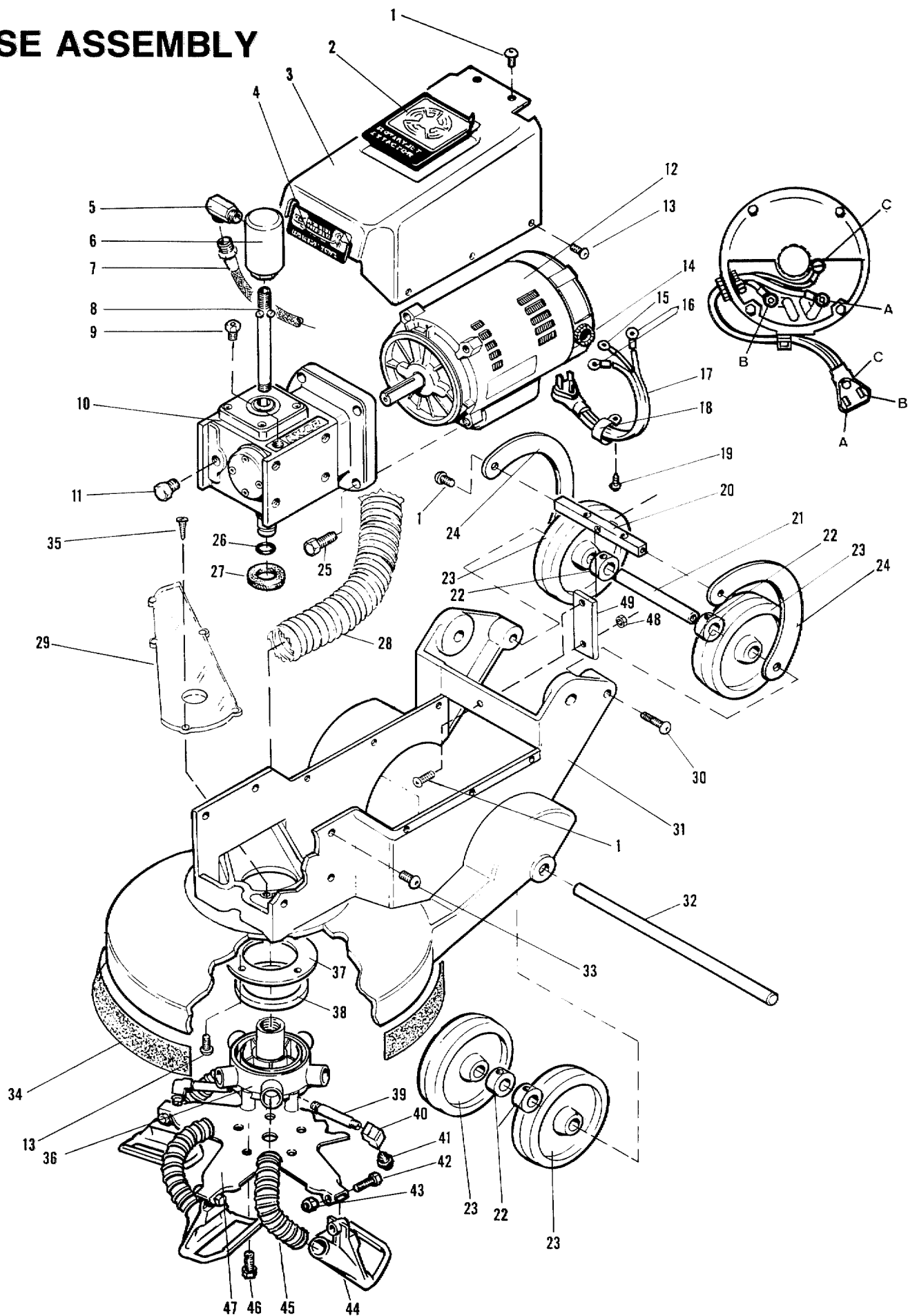
WARNING: Warranty is violated when proper maintenance is neglected, unit is abused, unit is damaged from hard water or freezing or damaged from any uses not prescribed in this manual.

PARTS LIST (see illustrations on following two pages)

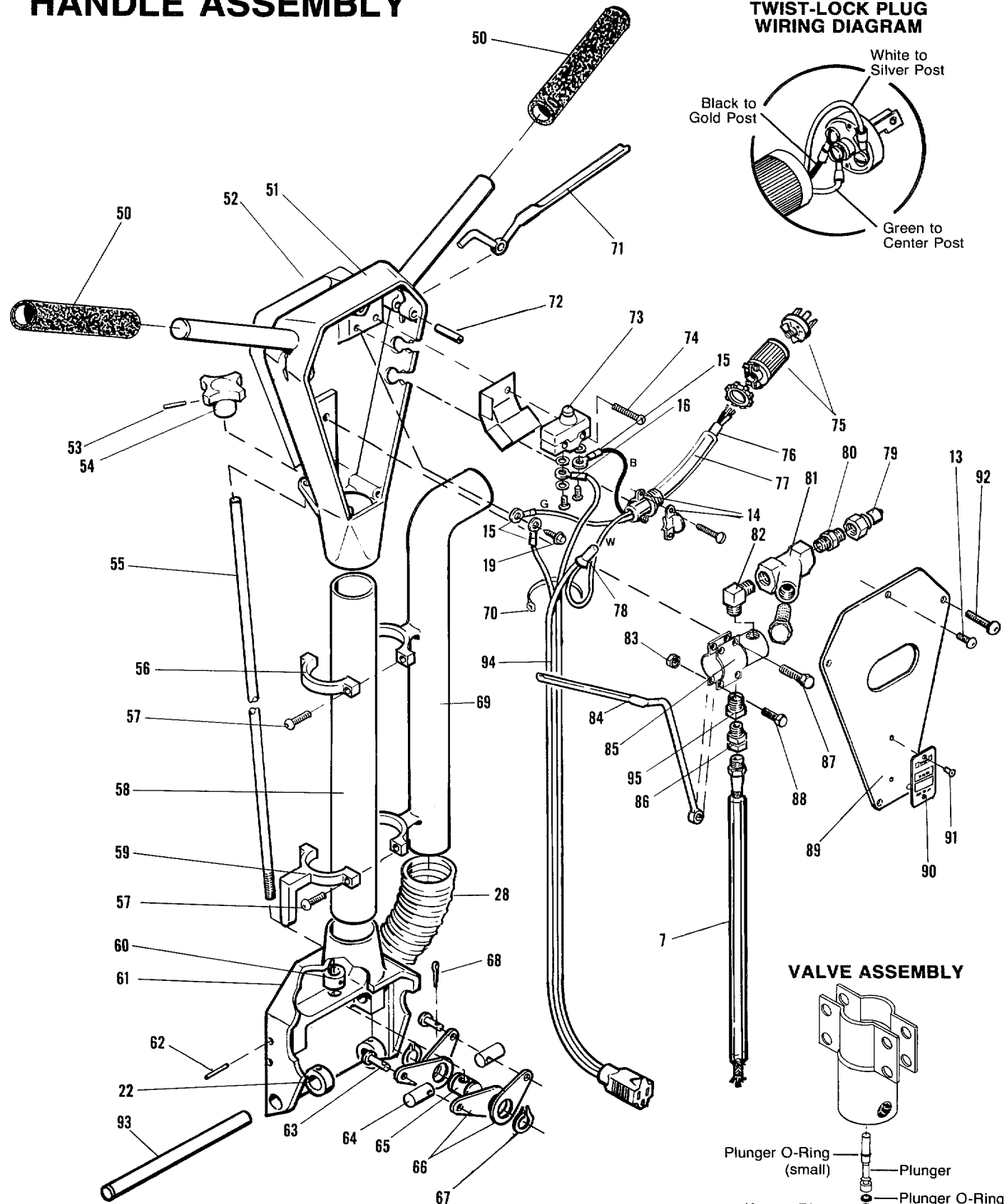
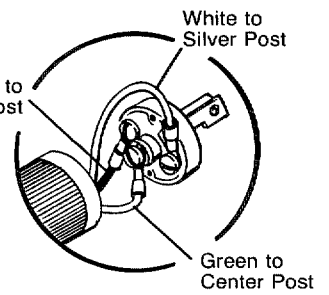
NO.	DESCRIPTION	PART NO.	QTY.
1	SCREW, 10-24 x 5/8" BTHDC	000-143-166	8
2	DECAL, RTRY JET EXTRACTOR	000-081-001	1
3	COVER, TOP MOTOR	000-041-026	1
4	DECAL, H/M LOGO	000-081-001	1
5	2MA - 2UFS	000-052-002	1
6	1/8" ROTARY UNION	000-052-300	1
7	HOSE, VALVE/RTRY UNION	000-168-175	1
8	NIPPLE, GEARBOX INSULATING	000-052-298	1
9	VALVE, RELIEF	000-169-004	1
10	RX-20 GEARBOX-STOCK	000-107-091	1
11	PLUG, 1/4 BRASS	000-106-002	1
12	MOTOR, ELECTRIC 1/2 HP-STK	000-191-006	1
13	SCREW, 10-24 x 3/8" S/S BTNHD	000-143-166	14
14	3/8" TITE BITE CONNECTOR	000-052-140	2
15	TERMINAL, #10 RING - 16 AWG	000-037-014	1
16	TERMINAL, #10 RING - 12 AWG	000-037-016	2
17	ELECTRIC MOTOR WIRE ASSY	604-052-008	1
18	CLAMP, 1/2" NYLON	000-033-022	1
19	SCREW, #8 x 1/3" HXWSHDSM	000-143-118	2
20	BRACKET, HOOD	000-015-066	1
21	5 1/2" SKID AXLE	000-141-001	1
22	1/2" SET COLLAR	000-020-005	6
23	WHEEL, 5" PLASTIC	000-177-008	4
24	HANDLE ARC	000-107-096	2
25	SCREW, 3/8-16 x 1" HMC	000-143-018	4
26	O-RING, CAST GEARBOX SHAFT	000-097-009	1
27	SPACER, 1" GEARBOX SHAFT	000-154-013	1
28	HOSE, BASE CUT-MANIFOLD	000-068-040	1
29	COVER, SIGHT-SIDE PORT	000-041-017	1
30	SCREW, 5/16-18 x 1 1/2" BTHDC	000-143-164	2
31	BASE, RX-20 SIDE PORT	000-006-008	1
32	AXLE, FRONT SKID	000-141-010	1
33	SCREW, 5/16-18 x 3/4" BTHDC	000-143-142	8
34	GASKET, ROTO SHROUD	000-057-048	1
35	SCREW, 10-24 x 1/2 FHM	000-143-114	4
36	PLASTIC HUB	000-107-022	1
37	SEAL PLATE	000-105-008	1
38	GASKET, FELT HUB	000-057-047	1
39	NIPPLE, 1/8" x 4" BRASS	000-052-080	5
40	ELBOW, 1/8" BRASS	000-052-089	5
41	JET, 80015 S/S 1/8 VV	000-076-037	5
42	SCREW, 5/16-18 x 1 1/2" S/S HHC	000-143-158	5
43	NUT, 5/16-18 S/S NYLOCK	000-094-035	5
44	HEAD, RX-20 VACUUM SKID	000-064-006	5
45	HOSE, VAC HUB/SKID	000-068-174	5
46	SCREW, 5/16-18 x 1/2 S/S HHC	000-143-148	5
47	S/S HEAT TREATED STAR	000-107-089	1
48	NUT, 10-24 S/S NYLOCK	000-094-034	2

NO.	DESCRIPTION	PART NO.	QTY.
49	HOOD BRKT SUPPORT	000-015-078	1
50	HANDLE, RX-20 SPONGE	000-061-001	2
51	UPPER HANDLE	000-061-016	1
52	DECAL, RX HANDLE	000-081-001	1
53	PIN, 1/8 x 3/4 ROLL	000-103-014	1
54	KNOB, ADJUSTING	000-061-015	1
55	ADJUSTING ROD	000-141-002	1
56	CLAMP, PLAIN MNFLD	000-033-049	1
57	SCREW, 10-24 x 1 1/2" BTHDC	000-143-167	4
58	HANDLE SHAFT	000-061-016	1
59	CLAMP, HOOK MNFLD	000-033-048	1
60	3/8" SET COLLAR	000-020-004	1
61	LOWER HANDLE	000-061-016	1
62	PIN, 5/32 x 1" ROLL	000-103-015	4
63	PIN, 1/4 x 7/8 "CLEVIS"	000-103-012	2
64	PLUNGER	000-107-101	2
65	ADJUSTING NUT	000-094-030	1
66	LINK	000-107-097	4
67	RING, SNAP	000-139-006	2
68	PIN, 5/32 x 1/2" COTTER	000-103-013	2
69	MANIFOLD ASSY, UPPER	000-090-012	1
70	TIE WRAP, 4" NYLON	000-162-001	1
71	TRIGGER, POWER	000-167-010	1
72	TRIGGER PIVOT	000-107-103	1
73	SWITCH, MICRO	000-157-032	1
74	SCREW, 6-32 x 1" RHM	000-143-048	2
75	PLUG, TWIST LOCK	000-106-006	1
76	HANDLE PIG TAIL	604-051-011	1
77	HOSE, 1/2" ID CLEAR 6"	000-068-024	1
78	WIRE NUT, YELLOW	000-094-021	1
79	440 MALE QUICK CONNECT	000-052-050	1
80	NIPPLE, 1/4 BRASS HEX	000-052-071	1
81	FILTER, SOLUTION	000-049-033	1
82	1/4 M x 1/4 M ELBOW	000-052-301	1
83	NUT, 1/4 - 20 HEX	000-094-008	1
84	TRIGGER CHEMICAL	000-167-009	1
85	VALVE, CHEM. SOLUTION	000-159-058	1
86	2MA - 2UFS	000-052-001	1
87	SCREW, 1/4-20 x 1 3/4" HHC	000-143-005	2
88	SCREW, 1/21-20 x 1" HHC	000-143-002	1
89	COVER, HANDLE ACCSS.	000-041-013	1
90	PLATE, RX-20 SERIAL I.D.	000-105-018	1
91	RIVET, AB4 - 3A POP	000-140-001	2
92	SCREW, 10-24 x 1 1/2" BTHDC	000-143-167	1
93	ROD, HANDE PIVOT 8 1/8"	000-141-009	1
94	INTERNAL WIRE HARNESS	604-051-003	1
95	1/4M x 1/8F BRASS BUSHING	000-052-059	1

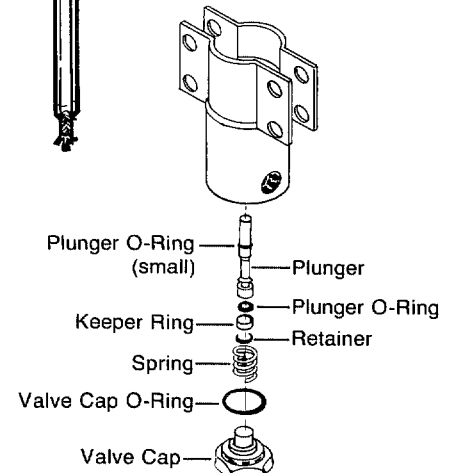
BASE ASSEMBLY



TWIST-LOCK PLUG WIRING DIAGRAM



VALVE ASSEMBLY



RX-20

TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	PROBABLE SOLUTION
Low vacuum flow at the cleaning heads	Hub not sealing properly	Replace felt seal with a lubricated one
	Restricted air flow	Check all vacuum hoses for restrictions
	Low vacuum flow from power source	Refer to troubleshooting section of equipment manual
Low water flow at cleaning heads (can cause irregular water temp)	Restricted jets	Remove jets and clear them of debris
	Clogged water strainer	Remove water strainer and clean
	Kinked or clogged solution hose	Remove hose, repair or replace
	Cleaning hub not properly threaded to shaft	Remove cleaning hub from shaft, clean and re-thread onto shaft
Water leak at rotary union	Foreign matter in rotary union seal	Dismantle rotary union, clean, reassemble and install on the RX-20
Water leak at valve	Ruptured plunger or valve O-ring	Repair or replace damaged plunger, o-ring, seal. Check for freeze damage
Loss of oil from gearbox	Loose or ruptured oil seal	Replace damaged oil seal, refill gearbox with oil
No power	RX-20 wiring, or power source	Have an electrician inspect unit for possible wiring or motor problems
	Overload power source	Locate an unused power source
	Gearbox	Repair or replace gearbox