DOMESTIC AND INTERNATIONAL

RX20 Rotary Extractor Owner's Manual

700-041-030	**700-041-332**
700-041-031	**700-041-333**
700-041-330	**700-041-334**
700-041-331	**700-041-407**

HydraMaster
11015 47th Avenue West
Mukilteo, Washington 98275

MAN-47328 Rev.A, April 2018
(P/N 000-182-171D)

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1- Introduction

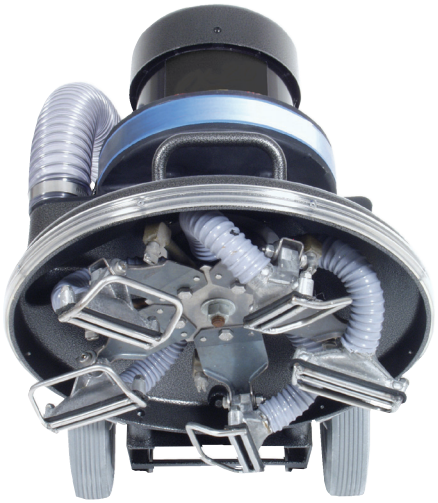
***Congratulations**,*

You now own a piece of equipment that incorporates the latest in carpet, tile and grout cleaning technology. Your foresight in purchasing an RX20 shows that you care enough to give your customer the maximum cleaning process available. You have invested in not only a cleaning tool, but a marketing tool that will enhance your professional image in every way.

The RX20's features will almost certainly increase your productivity while decreasing the fatigue factor that may have prevented you from going after some of the larger cleaning jobs that are available to carpet cleaners and maintenance professionals today.

Your new RX20 is a powerful Rotary Jet Extractor that has been precision engineered to bring you to the state-of-the-art in carpet, tile and grout cleaning. The RX20's weight distribution and rotary motion enable the operator to maneuver the unit easily with less fatigue and without back strain.

The RX20's electric motor drives its precision transmission which, in turn, rotates the head, or star, assembly. Cleaning solution is injected through the center of the gear box shaft directly to the three spray jets.



Soiled solution is then extracted from the carpet by five stainless steel cleaning heads and drawn through the aluminum exhaust manifold to your cleaning system's recovery tank.

NOTICE

The RX20 is available in either the 120VAC / 60 Hz version or the 230VAC / 60Hz & 230VAC / 50Hz versions. Photos and illustrations throughout this manual show only the RX20 120VAC / 60 Hz version due to space limitations.

CONTACT INFORMATION

If you have any questions regarding the operation, maintenance or repair of this machine, refer to the following information and contact the appropriate HydraMaster department.

Hours	Telephone Numbers	E-mail Addresses
Monday-Friday	(425) 775-7275 Support	Tech Support: techsupport@hydramaster.com
7:00 a.m. to 5:00 p.m.	(425) 775-7276 Parts	Parts Support: parts@hydramaster.com
Pacific Time	FAX (425) 771-7156 - Parts (800) 426-4225 - Support	

When calling your distributor, be sure to reference the serial number and date of purchase.

FOR YOUR REFERENCE:

Serial No._____

Date of Purchase:_____

Purchased From (Distributor): _____

WARNINGS, CAUTIONS AND NOTICES

⚠WARNING

HydraMaster uses this WARNING symbol throughout the manual to warn of possible injury or death.

CAUTION

This CAUTION symbol is used to warn of possible equipment damage.

NOTICE

This NOTICE symbol indicates that federal or state regulatory laws may apply, and also emphasizes supplemental information.

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2- Machine Specifications

	RX20 - 120 VAC	RX20 - 230 VAC	
Length	23”	23”	
Base Width	21”	21”	
Height - Standard	Up to 43”	Up to 43”	
Weight	62 lbs	62 lbs	
Motor	1/2 HP Totally Enclosed Fan-Cooled	1/2 HP Totally Enclosed, Fan-Cooled	
Voltage	120VAC/60Hz	230VAC/50 Hz or 60 Hz	
Gear Box	1,725 rpm Input 130 rpm Output Permanently Lubricated Helical Gear Drive	**230V/50Hz**	**230V/60Hz**
		1,450 rpm Input 109 rpm Output Permanently Lubricated Helical Gear Drive	1,725 rpm Input 130 rpm Output Permanently Lubricated Helical Gear Drive
Oil Capacity	12 oz	12 oz	
Star Head Plate	Replaceable, Spring Steel Arms	Replaceable, Spring Steel Arms	
Cleaning Heads	Five Cast Aluminum	Five Cast Aluminum	
Solution Jets	Three Stainless Steel Conejet 1/8GG SS1	Three Stainless Steel Conejet 1/8GG SS1	
Solution Strainer	Mesh, Stainless	Mesh, Stainless	
Solution Valve	Stainless Steel, High Pressure	Stainless Steel, High Pressure	
Cleaning Rate	Five Heads Rotating at 130 rpm = 650 Cleaning Passes/Minute	**230 VAC/50 Hz**	**230 VAC/60 Hz**
		Five Heads Rotating at 109 rpm = 545 Cleaning Passes/Minute	Five Heads Rotating at 130 rpm = 650 Cleaning Passes/Minute

	RX20 - 120 VAC	RX20 - 230 VAC
Handle Assembly	Foam Grips	Foam Grips
Transportation Wheels	8” diameter, 1-1/2” Wide; Gray, Non-Marking	8” diameter, 1-1/2” Wide; Gray, Non-Marking
Electric Cord	50 ft, 14/3	50 ft w/M-F IEC Ends 230 V

The base, exhaust manifolds, handle, gear box housing and cleaning heads are all cast aluminum. Other parts are either metal or high impact plastic.

NOTICE

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

CONFIGURATIONS

When selecting your high efficiency rotary extractor machine, you have these models from which to choose:

If you want this configuration:	Order this P/N:
RX20 - 120VAC/60Hz	700-041-030
RX20 - 230VAC/60Hz	700-041-031
RX20 - 230VAC/50Hz	700-041-032

See detailed parts lists for all configurations.

OPTIONAL EQUIPMENT

To better meet your business needs, HydraMaster offers these options that you can add to your basic rotary extractor system:

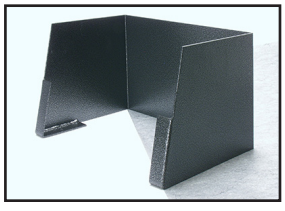
If you want this option:	Order this P/N:
Pad and Bonnet Driver	190-041-020 (Top Photo, Figure 2-1)
Hard Floor Attachment (LD)	190-041-024 (Middle Photo, Figure 2-1)
Hard Floor Attachment (MD)	190-041-026 (Middle Photo, Figure 2-1)
Hard Floor Attachment (HD)	190-041-025 (Middle Photo, Figure 2-1)
Mounting Bracket	000-163-018 (Bottom Photo, Figure 2-1)

RX Pad and Bonnet Driver
This attachment allows the RX to quickly convert to drive either carpet cleaning bonnets or standard hard floor pads. Part No. 190-041-024

RX Hard Floor Attachment - LD
Suitable for Light Duty (LD) scrubbing of vinyl, terrazzo, slate and marble surfaces. The brush on this attachment replaces red pads. Part No. 190-041-024

RX Hard Floor Attachment - MD
Suitable for Medium Duty (MD) to aggressive scrubbing and stripping of resilient floors, terrazzo, quarry tile and concrete floors. The brush on this attachment replaces brown and black pads and will outlast them more than 100 to 1. Part No. 190-041-025

RX Hard Floor Attachment - HD
Designed for Heavy Duty (HD) to most aggressive stripping and scrubbing of resilient floors, terrazzo, quarry tile and concrete floors. The brush on this attachment replaces high productivity pads. Part No. 190-041-025



RX Mounting Bracket
Keep your RX-20 High Efficiency Model secured in your van with our custom mounting brackets. Simply set the wheels of the extractor in the bracket and your machine will stay in place. Part No. 163-018

Figure 2-1. RX20 Optional Equipment

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3 - Assembly Instructions

To prepare your RX20 for use, follow these instructions:

1. Remove the machine from the packaging. Inspect the machine carefully for any damage that may have occurred during shipping.
2. Remove the solid shipping plug from the top of the gear box (see Figure 3-1).
3. Check the gear box lubricant level (see page 6-4 of this Owner's Manual).
4. Insert the vented plug (provided) into the gear box in place of the solid shipping plug. The solid shipping plug may be discarded.
5. Remove the protective wrapping material from the wheels.
6. Attach the cleaning head, or star, assembly to the base of the RX20 (see Figure 3-1).
   a. Lean the machine back and rest it on the handle.
   b. Thread the star assembly (cleaning head) onto the exposed shaft in a counterclockwise direction.

CAUTION

Be sure to remove the solid shipping plug from the top of the gear box and replace it with the vented plug (P/N 000-106-014), provided, before operating the machine (see Figure 3-1). Failure to follow these directions may result in damage to the gear box and seal.

Your RX20 is now ready to operate.

Figure 3-1. Fully Assembled RX20

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4 - Operating Instructions

PREPARATION

Handle Adjustment

Pull Tee knob up to release handle. Adjust the handle to a comfortable height. Release Tee knob to lock in place.

NOTICE

Most technicians 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 RX20 will do the work for you.

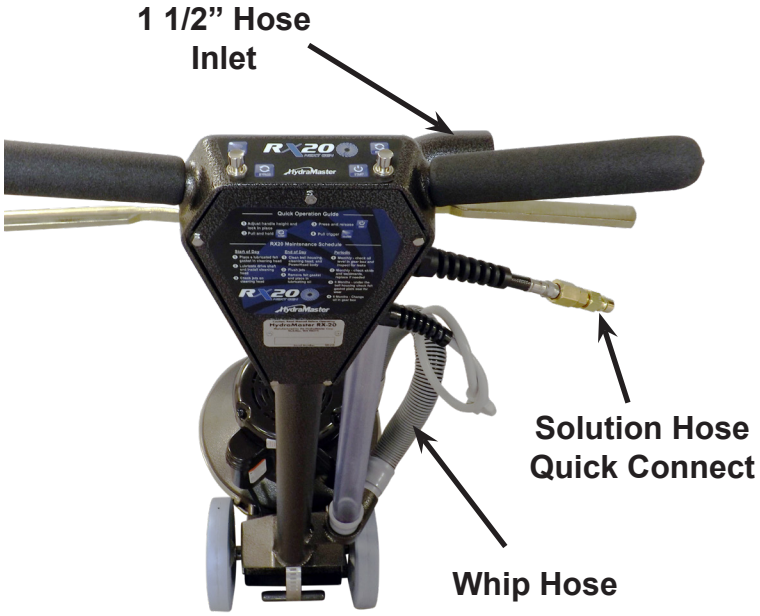


Figure 4-1. Solution and Vacuum Hose Connections

Solution and Vacuum Hose Connections

Your RX20 is equipped with one 440 brass male quick connect for the solution hose and an 1 ½” vacuum hose outlet (refer to Figure 4-1). The vacuum inlet cuff requires a 1 ½” I.D. and a 2” O.D. vacuum hose for proper air flow.

NOTICE

The vacuum hose must be in good condition to ensure maximum airflow.

Electrical Cord Connection

The 50 ft electrical cord on your RX20 is a detachable three-prong grounded line requiring a three-prong, 15 Amp receptacle. A three-prong to two-prong adapter may be used, providing its ground wire is properly attached to a grounded terminal.

⚠WARNING

Do not, under any circumstances, remove the ground prong from your RX20 power cord. Serious injury or death may result.

For best results, vacuum the carpet thoroughly prior to using the carpet cleaning system.

OPERATION

CONTROL FUNCTIONS

There are control triggers located on each side of the handle under the rubber hand grips. As you operate the PowerHead, the trigger on your right-hand side controls the electric motor that drives the cleaning heads. The Safety switch located on the top right hand side of the handle must be depressed while the trigger is pulled. Once the motor is running, the safety switch can be released. This must be done each time the trigger is released and the motor is restarted. This lockout will prevent accidental starting of the motor. On the left hand side, the trigger controls the high pressure solution spray. The push button located on the top left hand side will allow the motor to continue running as long as it is depressed and held prior to releasing the right hand trigger. The purpose of this function is to allow the operator to temporarily use his or her right hand to move the cord and hoses, while the head is rotating. The air flows constantly while the RX20 is in operation.

MANEUVERING THE RX20

Your RX20 maneuvers like a buffer (see Figure 4-2).

1. To move the RX20 to the right, lift the handle slightly. The more you lift or lower the handle, the faster the RX20 will move as shown in Figure 4-2.
2. To move the RX20 to the left, lower the handle slightly. The more you lift or lower the handle, the faster the RX20 will move as shown in Figure 4-2.
3. 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 RX20, practice on an open carpeted area. Depress both the solution trigger and motor trigger and move the RX20 slowly in a 3 – 5 ft arc, as shown in Section 5 Figure 5-1 of this manual.

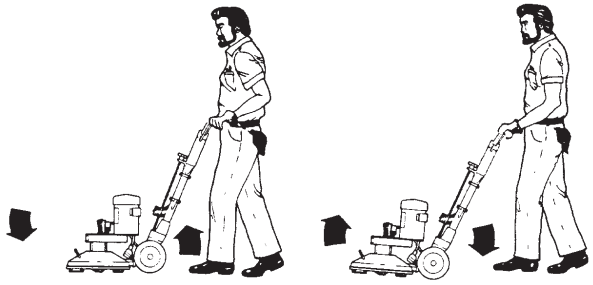


Figure 4-2. PowerHead Maneuvers Like a Buffer

After 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 indentions.)

CAUTION

Do not operate your RX20 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.)

CAUTION

Do not tilt machine sideways while moving forward and backward (see Figure 4-3). A loss of control may result in damage to the unit or location.

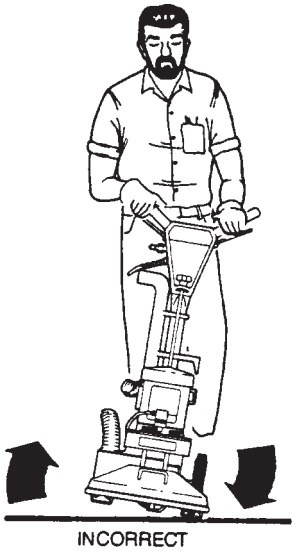


Figure 4-3. Incorrect Use of the Machine

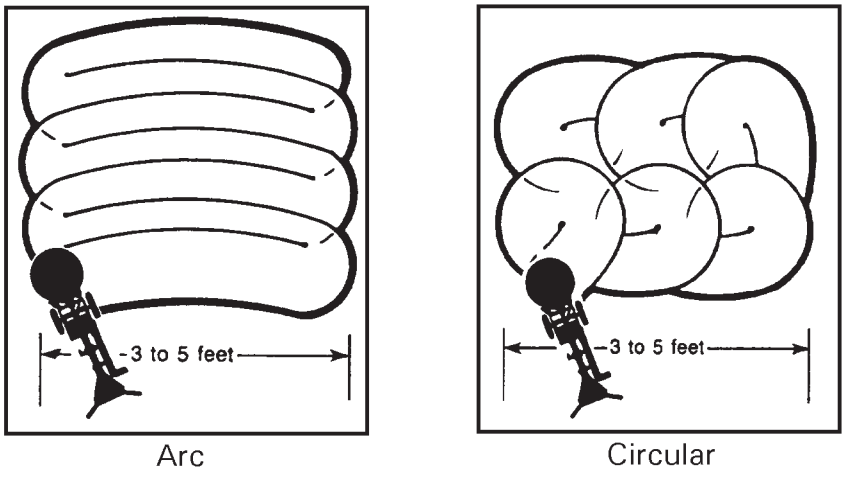
EDGING TOOL
The edging tool is located on the front right-hand side of the RX20.

1. To remove, pull the edging tool upward until the dovetail exits the slot.
2. Pull the tool away from the RX20 and it is ready to use.
3. When attaching it back onto the machine, rest the end of the tool on the lower elbow and slide the dovetail into the slot.
4. Gently push the edging tool into the elbow until it is snug.

NOTICE

To view an online demo, access this website:

http://www.youtube.com/watch?v=wY236ahDIow&feature



Arc Circular

Figure 4-4. Correct Cleaning Patterns

5 - Cleaning Information

CLEANING PATTERNS

For regular carpet cleaning use an overlapping arc pattern three times over the same area (two passes with solution and one pass for drying). When cleaning carpets, first clean in circular pattern, then use the overlapping arc pattern to dry the area.

NOTICE

Dirtiest areas may require two or more cleaning passes. Using either pattern shown in Figure 4-4, you should develop a comfortable rhythm. To obtain maximum performance from your RX20, move it slowly and deliberately with a 50% overlap, giving it time to clean and extract. A steady pace rather than a frenzied one will increase efficiency and production, and decrease fatigue.

CAUTION

The following cautions should be observed while cleaning:

1. DO NOT operate your RX20 over metal floor moldings. Damage to both the molding and the cleaning head will result.

2. DO NOT operate your RX20 on hardwood floors.

3. DO NOT operate your RX20 over loose or unraveled carpet seams. The cleaning head may catch and cause further damage.

4. DO NOT operate your RX20 on concrete floors unless a hard-surface brush is installed. It will develop sharp edges on the extraction heads that will damage carpet fibers.

5. DO NOT clean over the edge of a loose carpet. Instead, clean only up to the edge. Damage may occur if the extraction heads catch the loose carpet.

SPECIAL INFORMATION

When you clean some plush carpets, you may notice a “pilling” effect. (Pilling occurs when fluffy particles appear on carpet surfaces; it is caused by fibers that loosen because of a weak twist or snags.)

With an RX20, 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 detached, 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 RX20 weighs approximately 80 lbs and rests on five 4” 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 RX20 may cause further delamination. When in doubt, DO NOT use your RX20 on such carpets.

CLEANING HINTS

1. Most cleaners customarily clean their way out of an area or room. With the RX20, you can clean into an area or room, as shown in the Figure 5-1, 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.
2. The RX20 is a very aggressive carpet cleaning power head and will leave the carpet with a freshly cleaned appearance. The carpet should be brushed or groomed after the cleaning process to remove any swirl marks left behind.
3. The RX20 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. “Cornrowing” in hallways can also be eliminated with minimal effort.

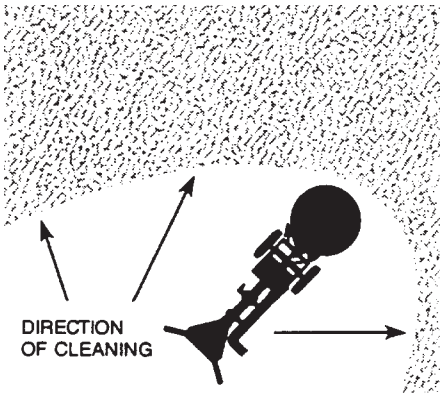


Figure 5-1. Clean into Area or Room

6 - Machine Maintenance

Good care and regular maintenance of your RX20 will result in a long, dependable life for the unit. Keep in mind that your RX20 will be in full view of your customer. An RX20 that is dirty and unkempt in appearance can cause your business or professional image to suffer. You are offering your customer the latest in cleaning technology. Therefore, it is important that your company image reflect your desire to give your customer the best.

The surface finish on your RX20 is a durable, powder coating and is easily cleaned with a damp cloth. To further protect the finish, a light coat of good silicon base polish should be applied periodically.

Lubrication and maintenance play a key role in the life of your RX20. Hence, 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 MAINTENANCE

1. Disconnect the RX20 from the power source and inspect its power cord for cuts, breaks and abrasions. Repair or replace as needed.
2. Inspect the vacuum hoses for breaks or tears. Repair or replace as necessary.
3. Visually inspect your RX20 for water leaks, wear damage to the cleaning heads, and so forth. Repair or replace as necessary.
4. Remove the inline solution filter screen by unfastening the nut from the body using an 11/16” and a 13/16” wrench. Remove the inline filter (see Figure 6-1).
5. Rinse it under water to remove debris. If necessary, use a toothbrush to remove stubborn particles.
6. Before re-inserting the inline filter, check the sealing surfaces on the inside of the nut and filter body to ensure they are clean of all debris, foreign material, and burrs.

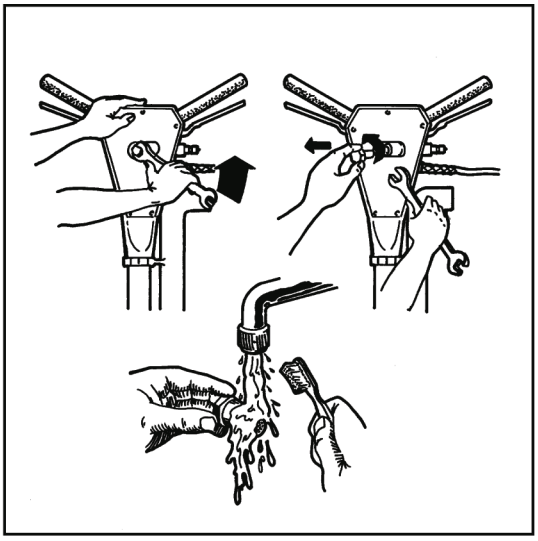


Figure 6-1. Remove Nut/Inline Filter

Clean or replace them as needed.

7. Check the spray pattern of each jet for uniform flow. An uneven spray will cause improper flow of the cleaning solution (see Figure 6-2).

⚠WARNING

Do NOT spray the high pressure solution in your face or eyes. Bodily injury can result.

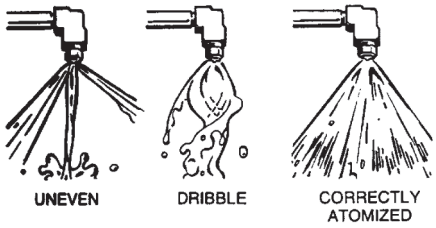


Figure 6-2. Check Jet Spray for Even Flow

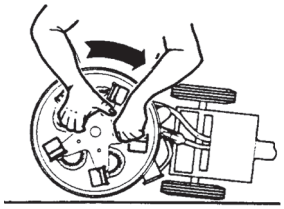


Figure 6-3. Loosen Cleaning Head Assembly

8. Loosen the cleaning head (star assembly). It unscrews in the same direction it turns during operation (or clockwise when looking at it from the underside) - see Figure 6-3.
9. After you have loosened the head assembly, spin it off with your hands. If the cleaning head is difficult to remove, you may use a 3/4” socket wrench on the exposed center nut. To prevent the gear box from turning, insert a 5/8” wrench just below the rotary union (see Figure 6-4).
10. Wash the cleaning heads and shroud assembly with a garden hose, being careful not to wet the electric motor assembly.
11. Clean any lint built up on the cleaning heads and vacuum hoses (lint buildup will

Figure 6-4. Location of Rotary Union

restrict proper airflow and prolong drying time).

12. Clean off any debris that may have accumulated on the gear box shaft or the inside threaded bore of the hub (see Figure 6-5).
13. 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 (see Figure 6-6).
14. Coat the shaft with TKX® All-Purpose Lube (HydraMaster P/N 000-087-006) or a similar lubricant. Re-install the vacuum head assembly onto the shaft by rotating it counter-clockwise (Figure 6-7).

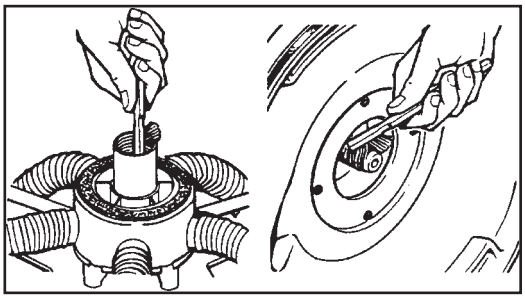


Figure 6-5. Clean Off Debris from Gear Box Shaft

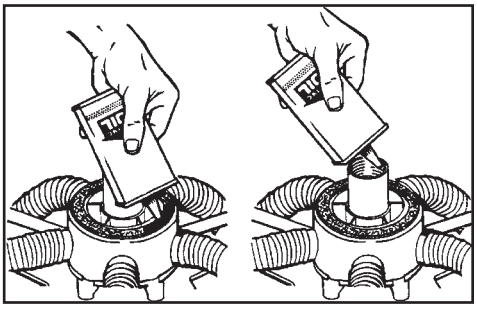


Figure 6-6. Lubricate Vacuum Seal on Top of Hub

CAUTION

An accumulation of debris in the gear box, if not removed, may damage the gear box oil seal. This will result in loss of oil in the gear box. If the gear box is operated without oil, severe damage may occur.

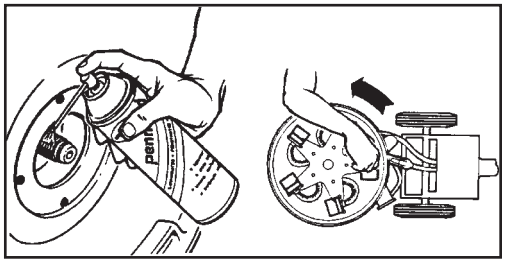


Figure 6-7. Lubricate Shaft and Re-install Head Assembly

CAUTION

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.

The smallest grain of dirt or sand will obstruct the threads. If you turn too far onto a grain of dirt, the hub may become locked onto the shaft of the gear box.

PERIODIC MAINTENANCE

Check the oil level in the gear box on a monthly basis. This is a permanently lubricated gear box. You do not need to change the oil. However, maintaining the proper oil level is important.

To check the oil level, remove the vent plug and look into the gear box. Turn the star until you can see the inspection hole in the gear. When the RX20 is sitting flat on a table or the floor, the oil level should be up to, but not above, the middle of the gear. If oil needs to be added, use a quality 80-90 weight gear oil.

NOTICE

When checking the oil level in the gear box, you can use a toothpick as a dip stick. The oil level should read 3/8” deep.

TRANSPORT AND/OR STORAGE

Whenever your RX20 is transported or stored, HydraMaster recommends that you remove the star assembly (cleaning head). The machine will then sit flat on the floor and remain more stable, especially during transport.

FREEZE WARNING AND PROTECTION

Your RX20 can suffer damage from freezing, as can any equipment that functions with the use of water. Care must be taken to protect this machine from freezing just as you do your other equipment.

To protect it from freezing, simply blow air from an air hose through the solution quick connect with the valve open. This eliminates water from the valve, solution line, rotary union and jet assembly.

Open and close the valve several times to ensure that all water is removed.

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7- Electrical Diagrams

Figure 7-1. Wiring Diagram - 120VAC / 60Hz
000-179-105 Rev A

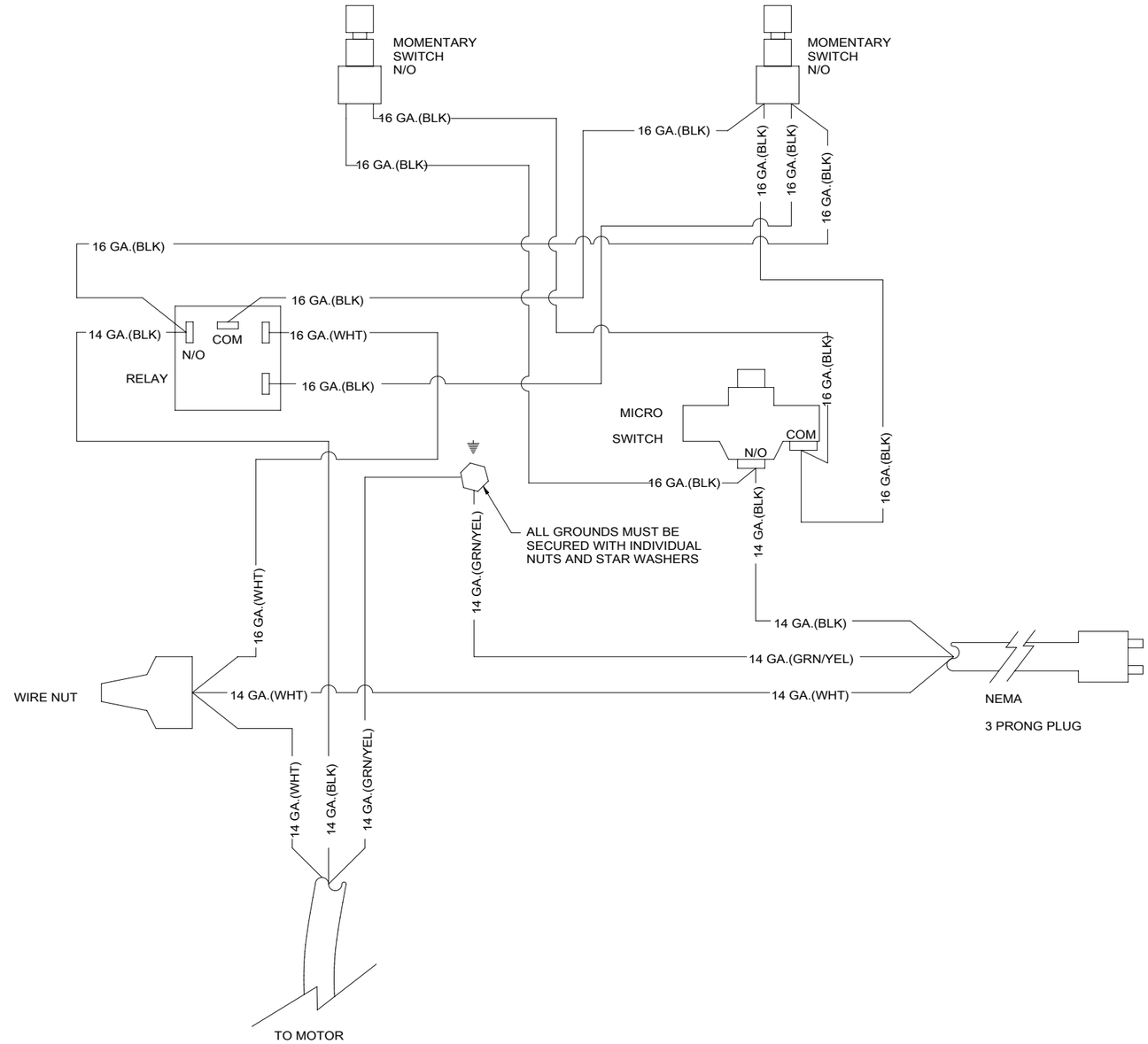
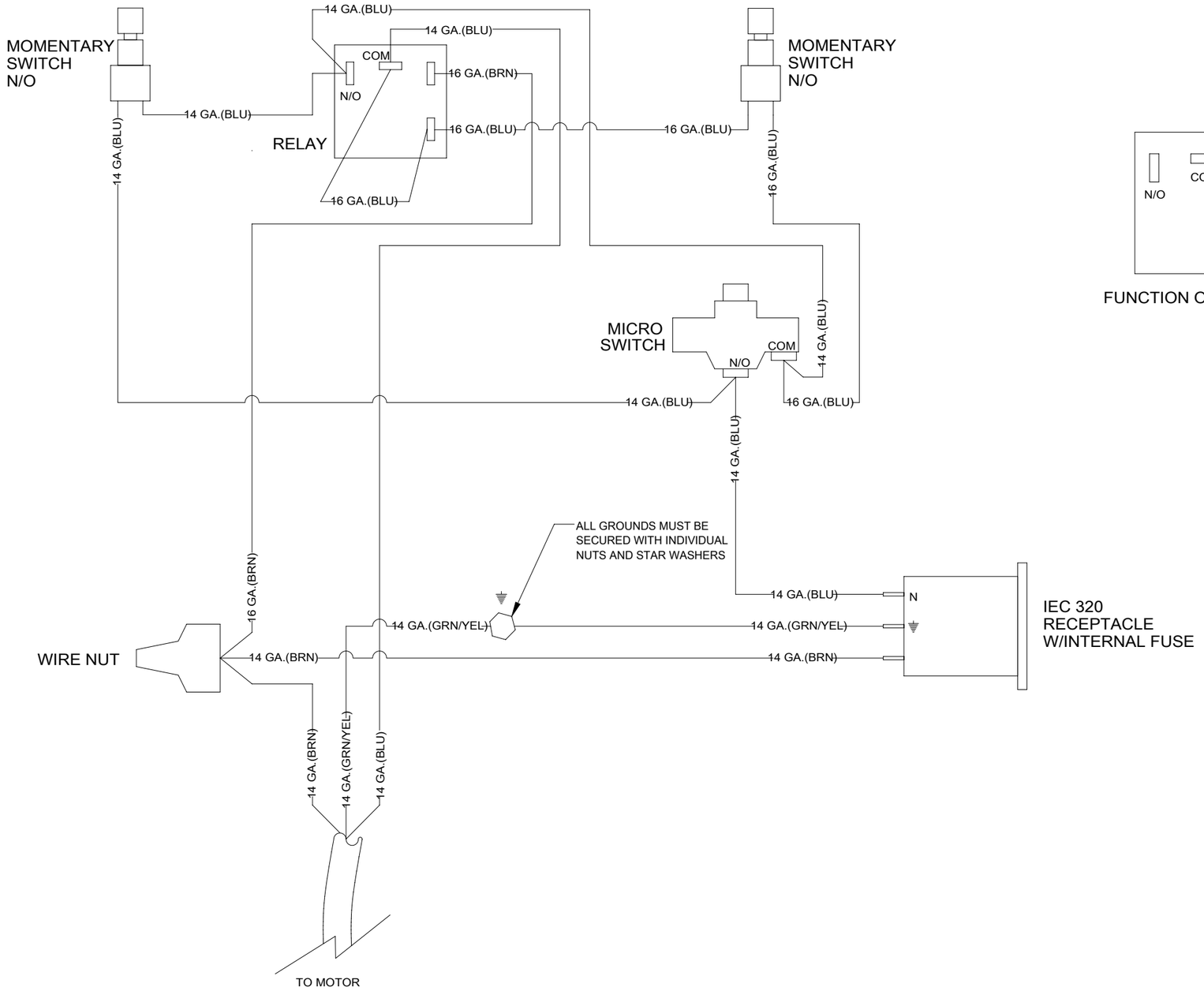
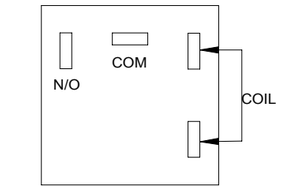


Figure 7-2. Wiring Diagram - 220 V, 50 Hz / 60 Hz
000-179-104 Rev. A



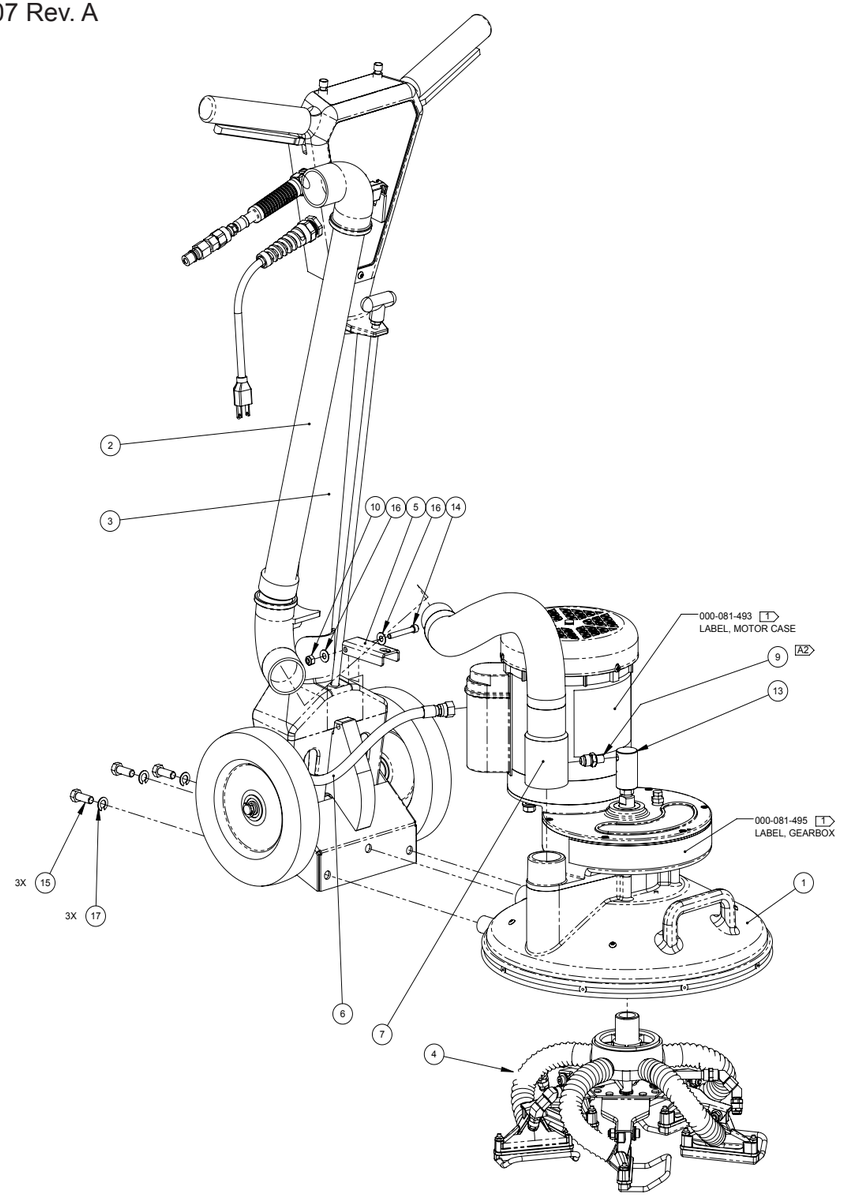


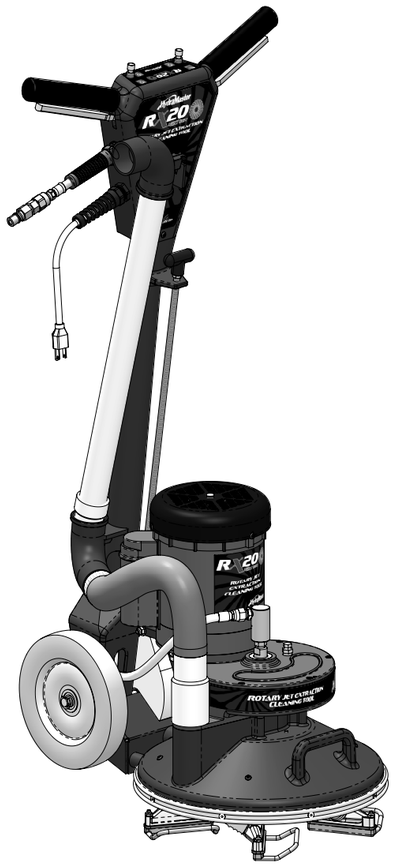
FUNCTION OF RELAY

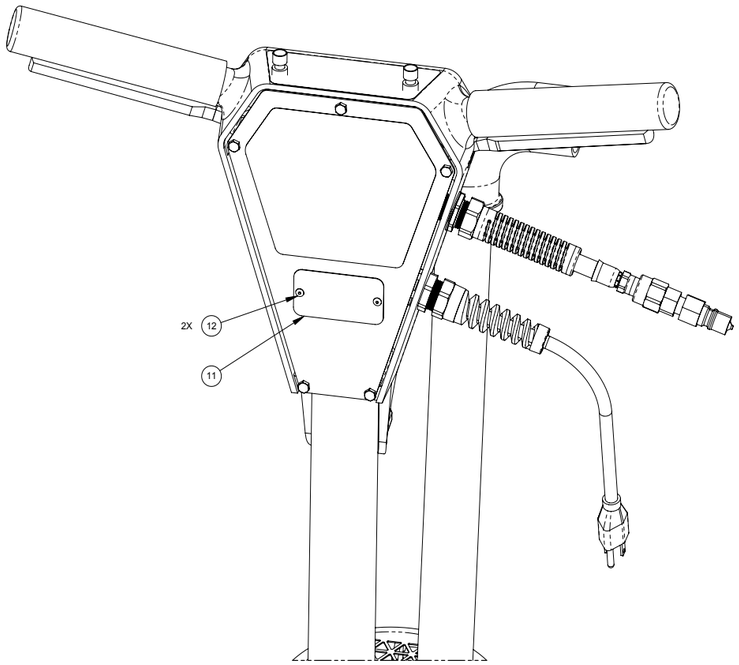
8 - Assemblies and Parts Lists

The following RX20 major assemblies are detailed in this section:

Figure 8-1. RX20 Final Assembly
604-999-107 Rev. A







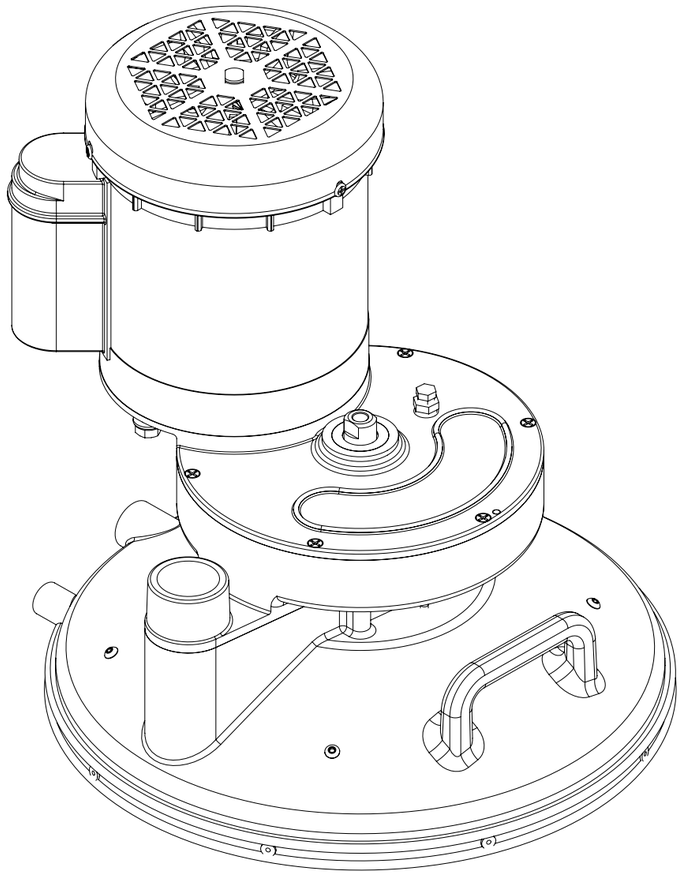
RX20 Final Assembly Parts List

Item	Part Number	Description	Qty
1	604-054-107	ASSEMBLY, BASE & DRIVETRAIN - 110/220V 60HZ RX20	1
2	000-163-152	ASSEMBLY, EDGING TOOL - NO RELIEF E04	1
3	604-051-107	ASSEMBLY, UPPER & LOWER HANDLE - 110V RX20 NXG	1
4	604-053-100	ASSEMBLY, VACUUM HEAD - H.E.	1
5	000-015-1374	BRACKET, BASE STABILIZING - COATED E-04	1
6	000-068-1088	HOSE ASSEMBLY, 5/16” PTFE (TEFLON) X 45.5” LG.	1
7	000-068-041	HOSE, BASE OUT RX-CD	1
8	000-081-490	LABEL SET, RX20 NXG	1
9	000-052-521	NIPPLE, 1/8” NPT x 1/4” JIC	1
10	000-094-009	NUT, 1/4”-20UNC NYLOCK	1
11	000-105-018	PLATE, RX-20 SERIAL I.D.	1
12	000-140-003	RIVET, 1/8” x 5/16” LG. (GRIP RANGE 0.251” - 0.312”)	2
13	000-052-522	ROTARY UNION, 1/8” NPT S.STEEL	1
14	000-143-008	SCREW, 1/4”-20UNC x 1.75” LG. SOCKET HEAD	1
15	000-143-096	SCREW, 3/8”-16UNC X 1.00” LG. HEX HEAD	3
16	000-174-003	WASHER, 1/4” FLAT S/S	2
17	000-174-057	WASHER, 3/8” LOCK	3

Figure 8-2. Base and Drive Train Assembly - View 1 of 2
604-054-107 Rev. A

NOTICE

Prior to operating the machine, replace the shipping plug (P/N 000-106-001) with the vented plug (P/N 000-106-014). See page 3-1 in this manual for more information.



This is part of motor P/N 000-091-055.

This is part of motor P/N 000-091-055.

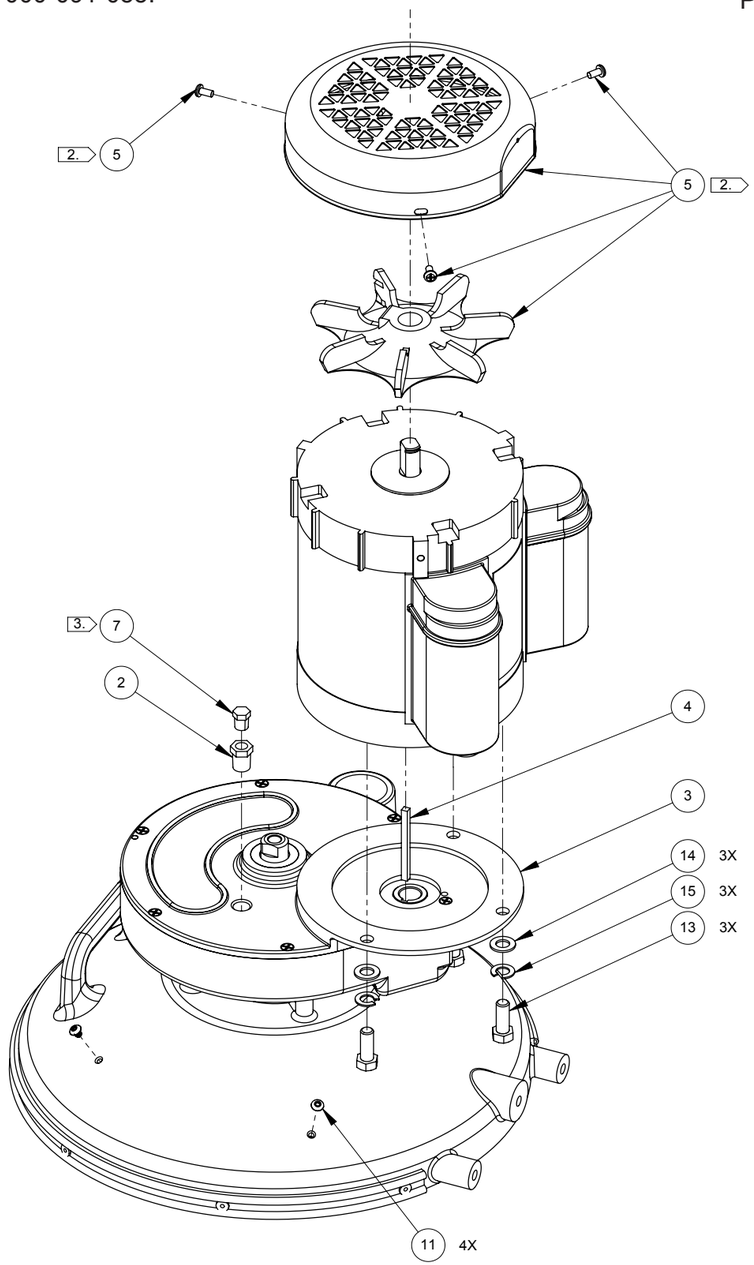
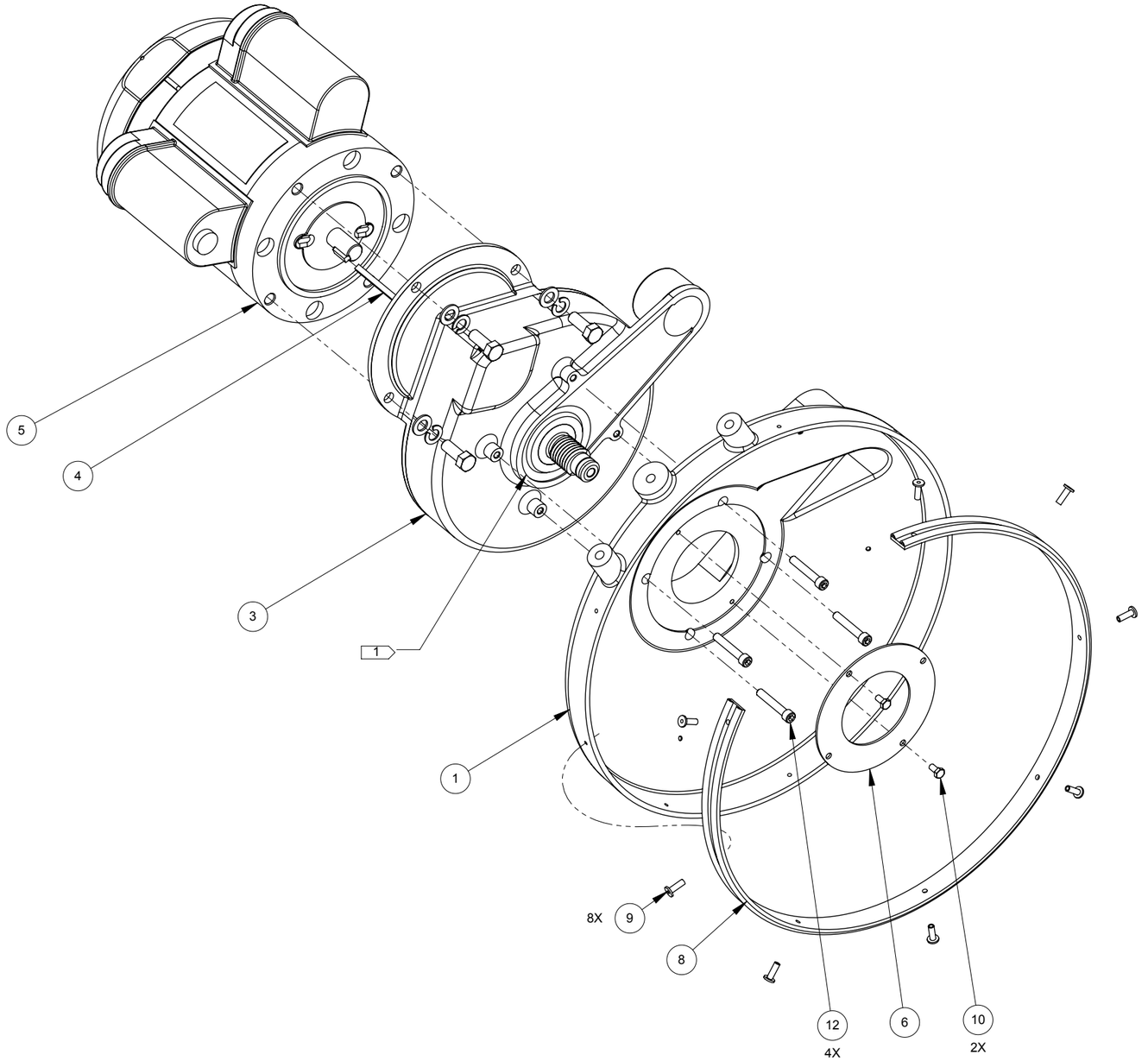


Figure 8-3. Base and Drive Train Assembly - View 2 of 2
604-054-107 Rev. A



Base and Drive Train Assembly Parts List

Item	Part Number	Description	Qty
1	000-006-009	BASE W/ HANDLE - COATED	1
2	000-052-059	BUSHING, 1/4” MPT x 1/8” FPT	1
3	000-059-001	GEAR BOX - COMPLETE	1
4	000-077-012	KEY, 3/16” x 2.5” LG. CLASS 2 FIT	1
5	000-091-015	MOTOR, 1/2 HP TEFC-H/S	1
6	000-105-008	PLATE, SEAL	1
7	000-106-001	PLUG, 1/8” NPT	1
8	000-108-205	PROTECTOR RX20 SHROUD X 36 LG	1
9	000-140-005	RIVET, 3/16” x 0.50” LG. POP (AB6-6A)	8
10	000-143-166	SCREW, #10-24UNC x 0.375” LG. HEX HEAD	2
11	000-143-075	SCREW, 1/4”-20UNC x 1.50” LG. SOCKET HEAD	4
12	000-143-096	SCREW, 3/8”-16UNC X 1.00” LG. HEX HEAD	3
13	000-174-057	WASHER, 3/8” LOCK	3
14	000-174-055	WASHER, FLR TECH LATCH PIVOT	3

NOTICE

* Prior to operating the machine, replace the shipping plug (P/N 000-106-001) with the vented plug (P/N 000-106-014). See page 3-1 in this manual for more information.

Use clear silicon to attach item 3 to item 1.

Figure 8-4. Upper and Lower Handle Assembly - View 1 of 3
604-051-107 Rev. B

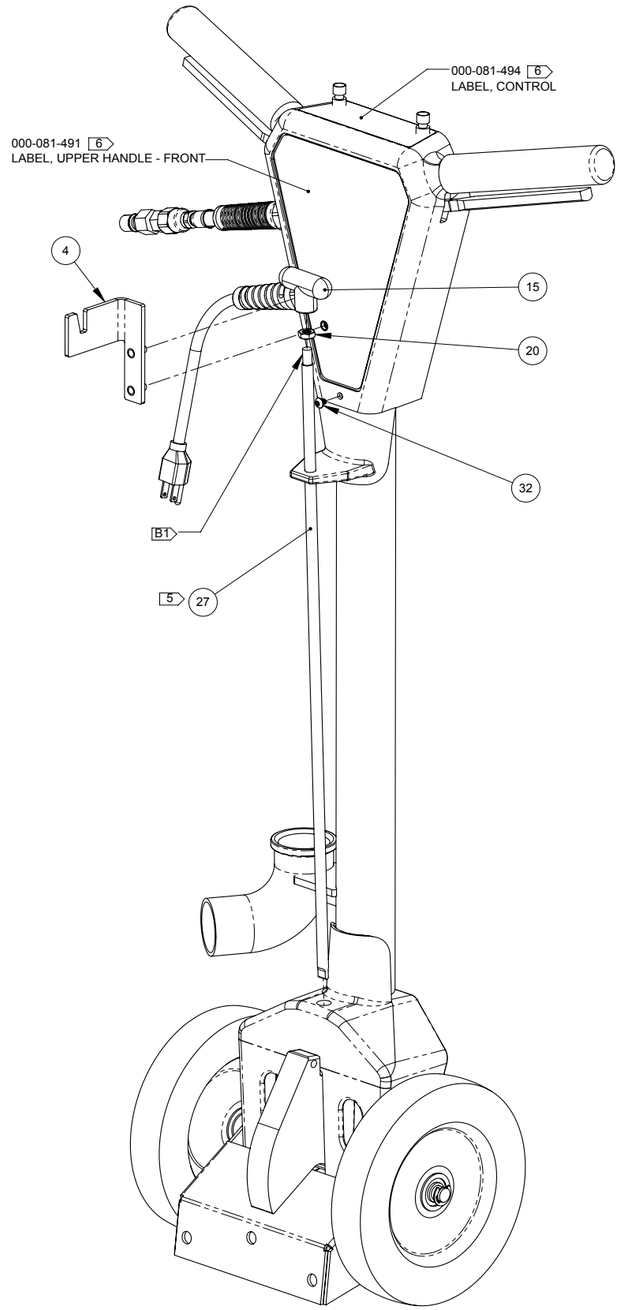
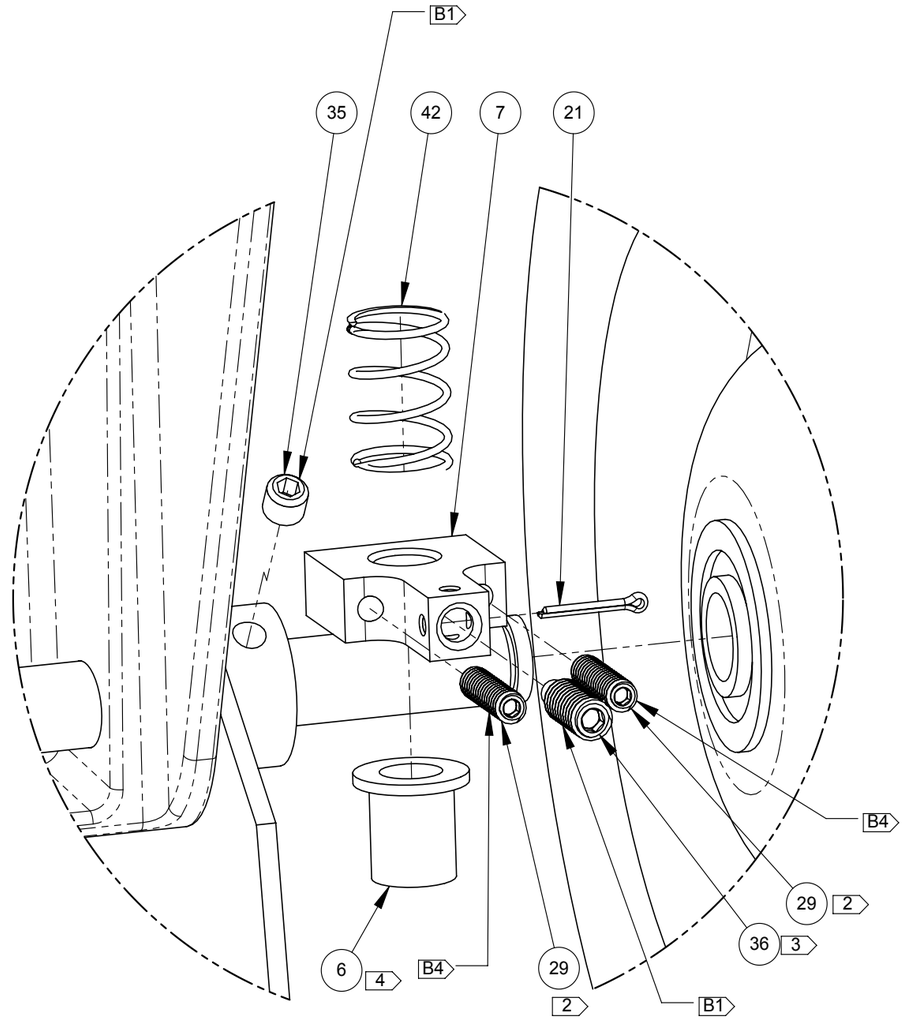
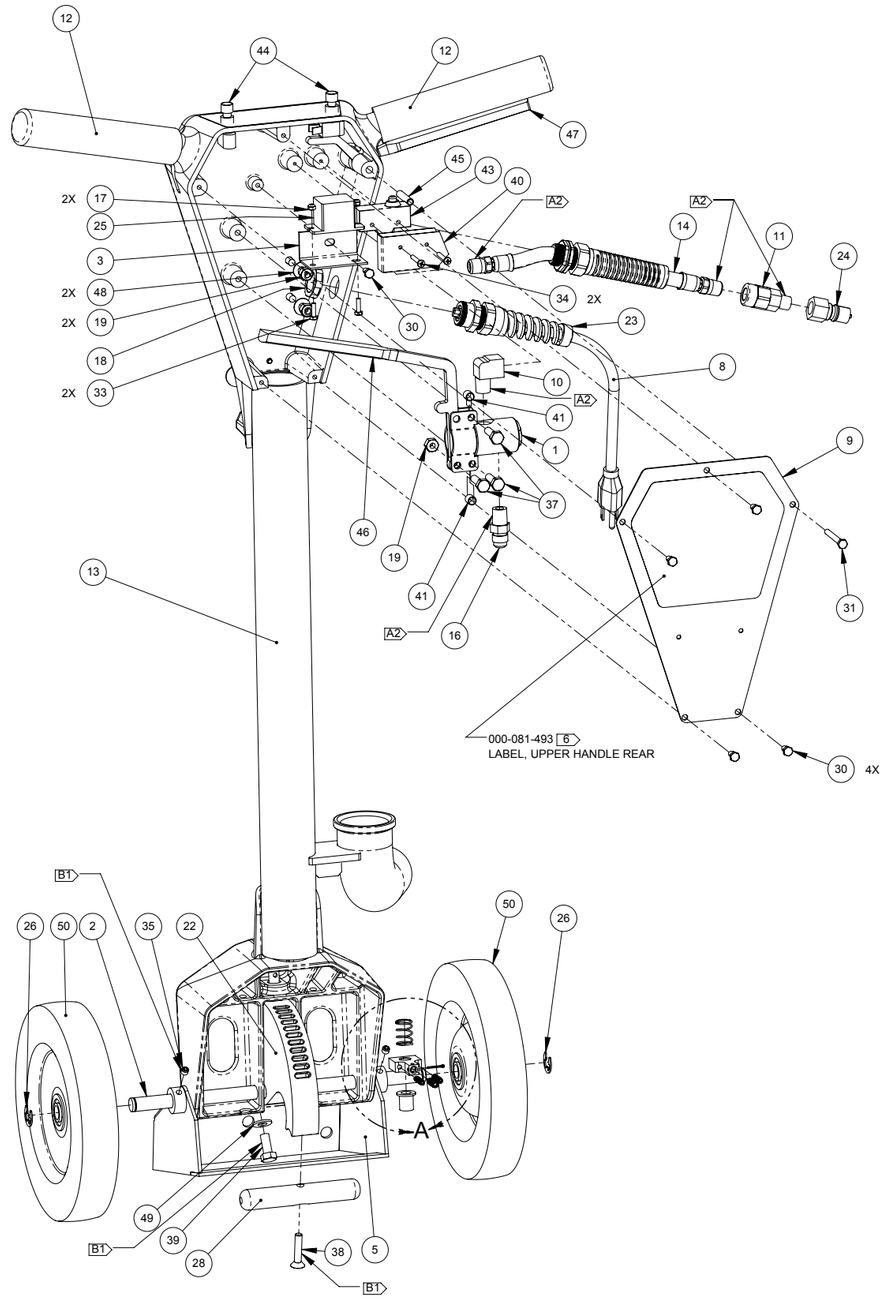


Figure 8-5 Upper and Lower Handle Assembly - View 2 of 3
604-051-107 Rev.B



DETAIL A
SCALE 2 : 1.5

Figure 8-6. Upper and Lower Handle Assembly - View 3 of 3
604-051-107 Rev. B

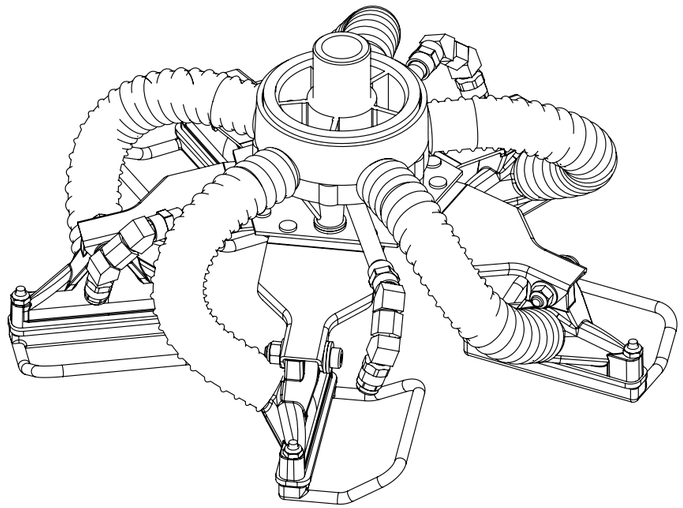


Upper and Lower Handle Assembly Parts List

Item	Part Number	Description	Qty
1	000-169-058	ASSEMBLY, VALVE, SOLUTION - STANDARD	1
2	000-141-004	AXLE, WHEEL - RX	1
3	000-015-190	BRACKET, AC RELAY - FABRICATED	1
4	000-015-1375	BRACKET, CREVIS TOOL MOUNTING - COATED E-04	1
5	000-015-1376	BRACKET, HANDLE TO BASE - COATED 04	1
6	000-020-077	BUSHING, 1/2” OD X 5/8” LG. BRONZE FLANG	1
7	000-020-076	COLLAR, ROD LOCKING - RX-CD 2017	1
8	000-178-046	CORD, POWER 14/3 GRAY x 31” W/ MALE	1
9	000-041-901	COVER, HANDLE ACCESS - RX20 NXG E-04	1
10	000-052-085	ELBOW, 1/4” NPT STREET	1
11	000-049-261	FILTER ASSEMBLY, CARTRIDGE INLINE	1
12	000-061-004	GRIP, FOAM - HANDLE	2
13	000-061-205	HANDLE, 110V - COATED E-04	1
14	000-068-1085	HOSE ASSEMBLY, 5/16” PTFE (TEFLON) x 9” LG. S/S	1
15	000-061-201	KNOB, RX PULL HANDLE	1
16	000-052-533	NIPPLE, 3/8” JIC x 1/4” NPT	1
17	000-094-063	NUT, #6-32UNC HEX NYLOCK	2
18	000-094-036	NUT, 1/2” NPT PIPE PLASTIC	1
19	000-094-009	NUT, 1/4”-20UNC NYLOCK	3
20	000-094-134	NUT, 5/16”-18UNC JAM S/S	1
21	000-103-021	PIN, 1/16” x 1/2” LG. COTTER S/S	1
22	000-105-764	PLATE, HANDLE ADJUSTING	1
23	000-108-012	PROTECTOR, POWER CORD RELIEF	1
24	000-052-050	QUICK CONNECT, 440 MALE W/ VITON STD	1
25	000-157-149	RELAY, AC RELAY 120V	1

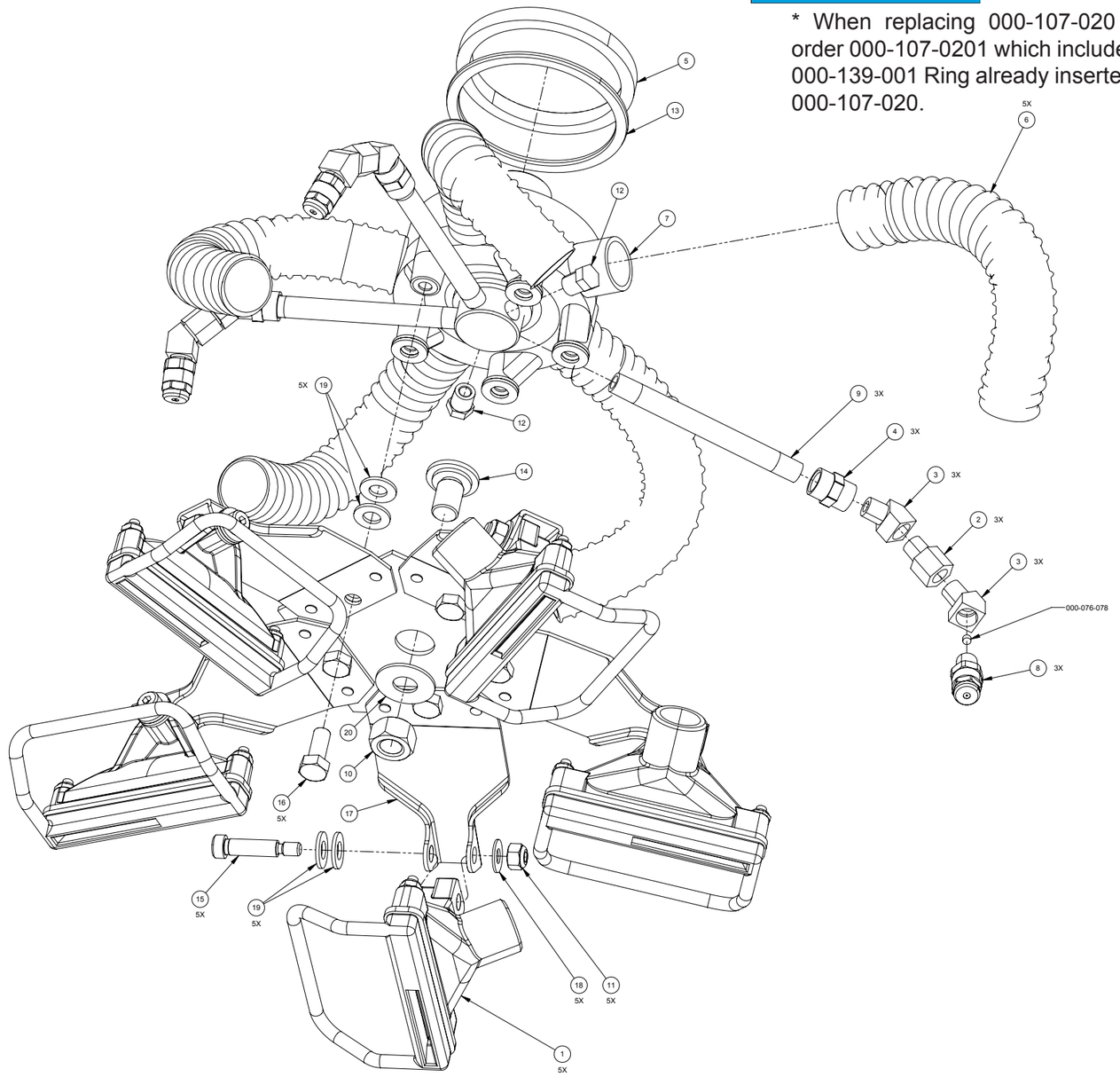
Item	Part Number	Description	Qty
26	000-139-009	RING, E-CLIP x 1/2”	2
27	000-141-052	ROD, HANDLE ADJUSTING	1
28	000-141-058	ROD, LIFTING HANDLE - COATED E-04	1
29	000-143-734	SCREW, #10-24UNC X 3/4” LG. SET BRASS TIP	2
30	000-143-166	SCREW, #10-24UNC x 0.375” LG. HEX HEAD	5
31	000-143-065	SCREW, #10-24UNC x 1.75” LG. HEX HEAD	1
32	000-143-747	SCREW, #10-24UNC x 1/4” LG. BUTTON HEAD BLACK	1
33	000-143-575	SCREW, #6-32UNC x 0.50” LG. HEX HEAD	2
34	000-143-048	SCREW, #6-32UNC x 1.00” LG. PAN HEAD PHILLIPS	2
35	000-143-737	SCREW, 1/4”-20UNC X 1/4” SET STEEL	2
36	000-143-735	SCREW, 1/4”-20UNC X 3/4” LG. DOG POINT SET	1
37	000-143-002	SCREW, 1/4”-20UNC x 1.00” LG. HEX HEAD	3
38	000-143-740	SCREW, 1/4”-20UNC x 1.25” LG. FLAT HEAD SOCKET	1
39	000-143-012	SCREW, 5/16”-18UNC x 3/4” LG.	1
40	000-108-014	SHIELD, MICRO SWITCH	1
41	000-154-001	SPACER, 1/4” x 5/16” - S/S SOLUTION VALVE	2
42	000-155-107	SPRING, 0.60” OD X 7/8” LG COMPRESSION	1
43	000-157-032	SWITCH, MICRO - RX	1
44	000-157-169	SWITCH, MOMENTARY P26	2
45	000-107-103	TRIGGER PIVOT	1
46	000-167-041	TRIGGER, HANDLE - LEFT HAND	1
47	000-167-042	TRIGGER, HANDLE - RIGHT HAND	1
48	000-174-003	WASHER, 1/4” FLAT S/S	2
49	000-174-049	WASHER, 5/16” FLAT	1
50	000-177-034	WHEEL, 8”	2

Figure 8-7. Vacuum Head Assembly
604-053-100 Rev. C



NOTICE

* When replacing 000-107-020 Hub, order 000-107-0201 which includes the 000-139-001 Ring already inserted into 000-107-020.



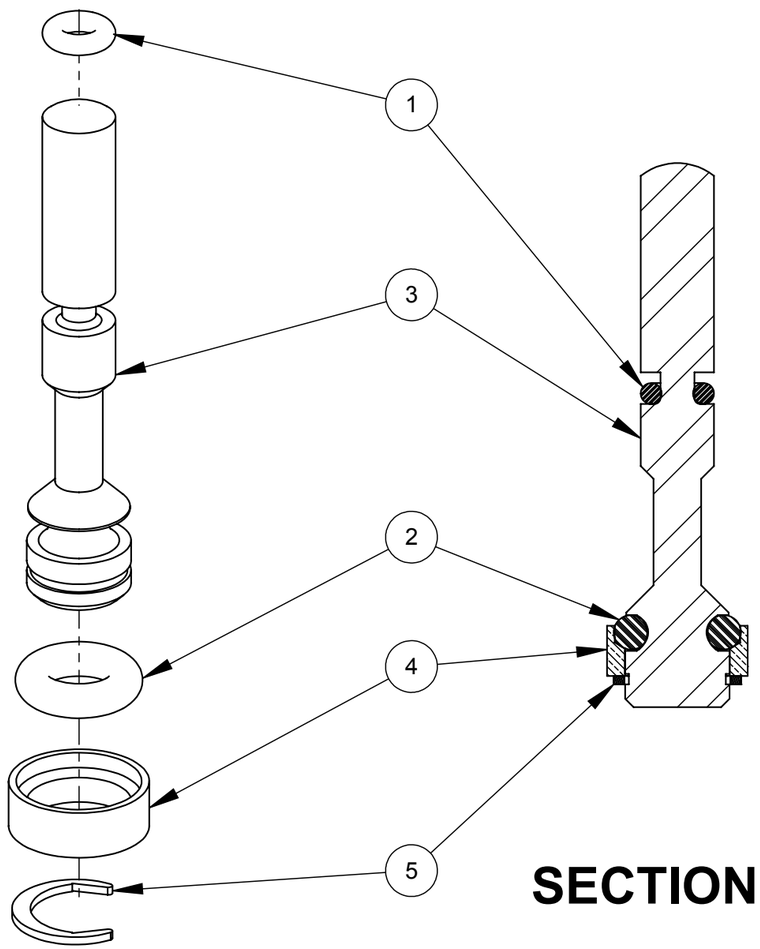
Vacuum Head Assembly Parts List

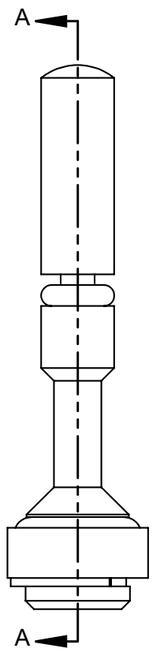
Item	Part Number	Description	Qty
1	000-064-012	ASSEMBLY, VACUUM SHOE & SKID	5
2	000-052-427	BUSHING, 1/8” NPT X 1/8” FPT	3
3	000-052-078	ELBOW, 1/8” NPT X 45° STREET	6
4	000-052-440	FITTING, 1/8” NPT BRASS COUPLING - MACHINED	3
5	000-057-047	GASKET, FELT	1
6	000-068-174	HOSE, 1” VACCUM - GRAY	5
7	000-107-020	HUB, VACUUM, BRASS, 5 PORTS, DUAL LEAD	1
8	000-076-076	JET, FULL CONE 1/8” – RX	3
9	000-052-515	NIPPLE, 1/8” NPT X 4” LG.	3
10	000-094-019	NUT, 1/2”-13UNC HEX	1
11	000-094-009	NUT, 1/4”-20UNC NYLOCK	5
12	000-106-001	PLUG, 1/8” NPT	2
13	000-139-001	RING PLASTIC - RX-20 2007	1
14	000-143-045	SCREW, 1/2” MODIFIED RX-20 STAR REMOVAL BOLT	1
15	000-143-162	SCREW, 5/16” x 1” LG. STIPPER - 1/4”-20UNC	5
16	000-143-012	SCREW, 5/16”-18UNC x 3/4” LG.	5
17	000-107-089	STAR, ASSEMBLY	1
18	000-174-003	WASHER, 1/4” FLAT	5
19	000-174-049	WASHER, 5/16” FLAT	20

NOTICE

* When replacing 000-107-020 Hub, order 000-107-0201 which includes the 000-139-001 Ring already inserted into 000-107-020.

Figur 8-8. Valve Stem Assembly
600-012-002 Rev. A





SECTION A-A

Valve Stem Assembly Parts List

Item	Part Number	Description	Qty
1	000-097-022	O-RING,3/32”x1/16”W	1
2	000-097-010	O-RING,H/M VALVE PLUNGER- LARGE	1
3	000-107-129	PLUNGER, SOLUTION VALVE	1
4	000-139-003	RING, SOLUTION VALVE KEEPER - BRASS	1
5	000-139-004	RING,SOL.VALVE STEM - SNAP RING- S/S	1

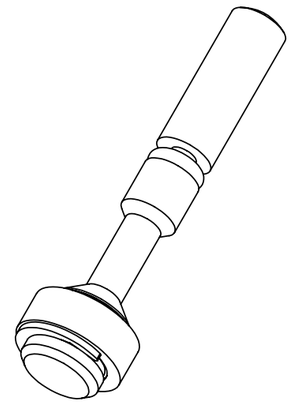
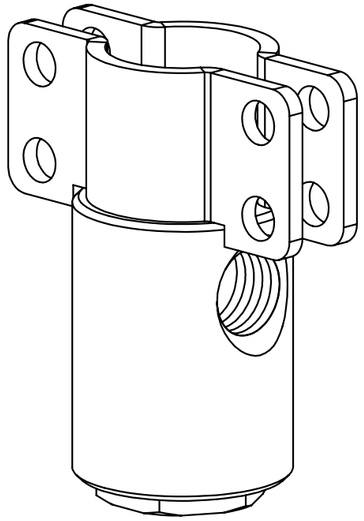
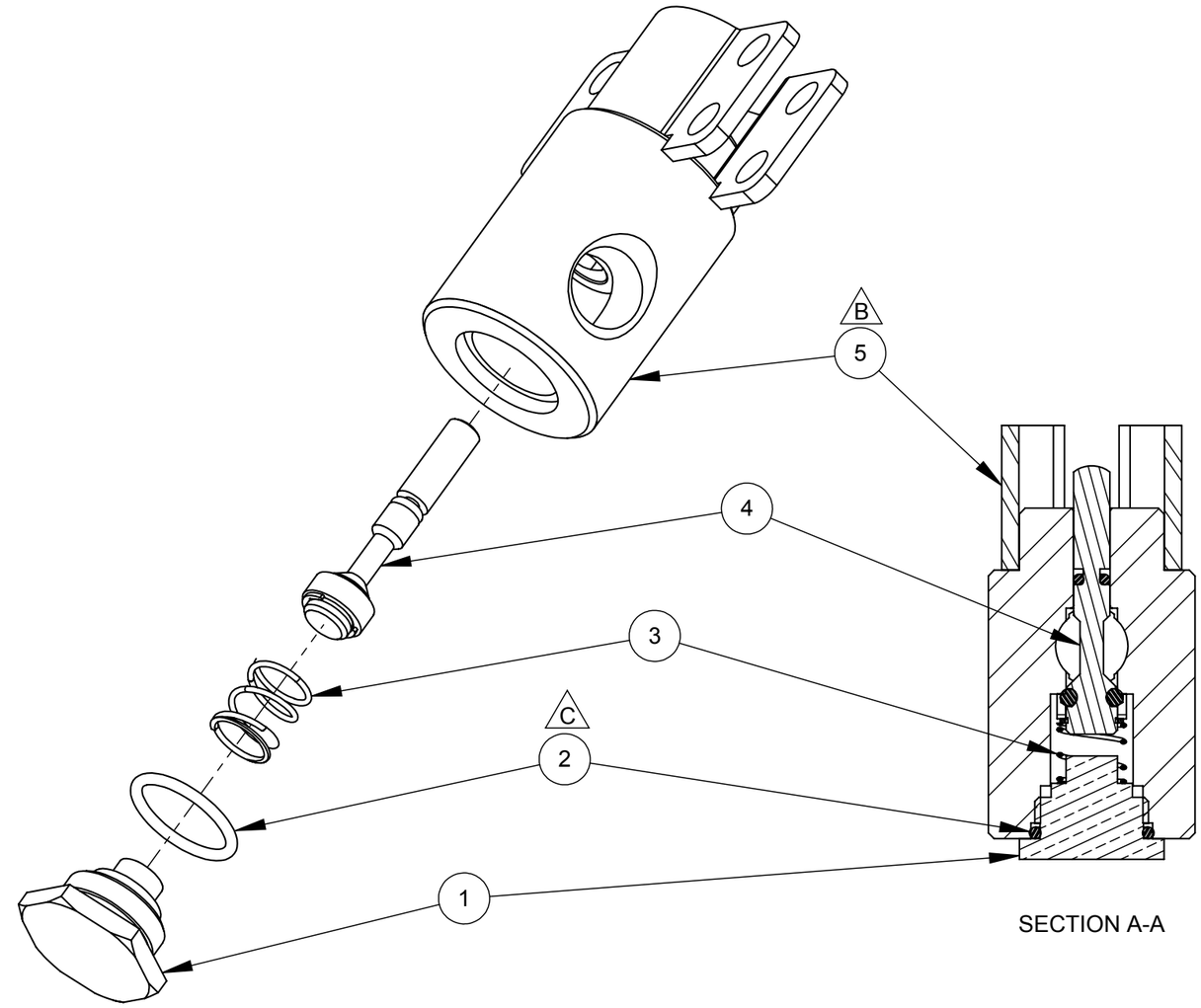


Figure 8-9. Solution Valve Assembly
000-169-058 Rev. C

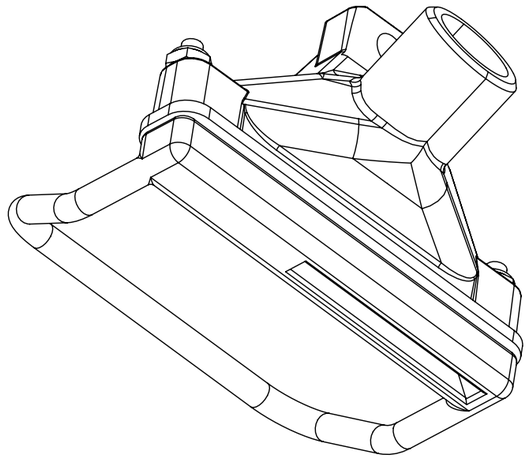


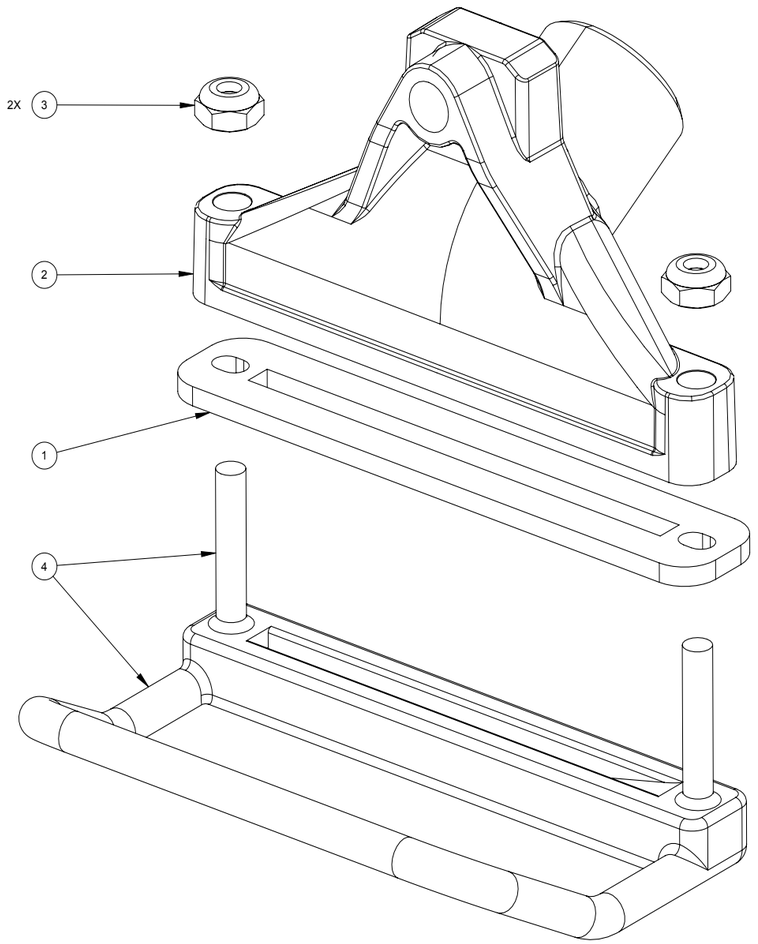


Solution Valve Assembly Parts List

Item	Part Number	Description	Qty
1	000-027-001	CAP, SOLUTION VALVE - BRASS	1
2	000-097-011	O-RING,5/8”x1/16”W	1
3	000-155-003	SPRING, SOLUTION VALVE	1
4	600-012-002	ASSEMBLY, VALVE STEM - STANDARD	1
5	600-012-001	VALVE, BODY - WELDED	1

Figure 8-10. Vacuum Shoe and Skid Assembly
000-064-012 Rev. B

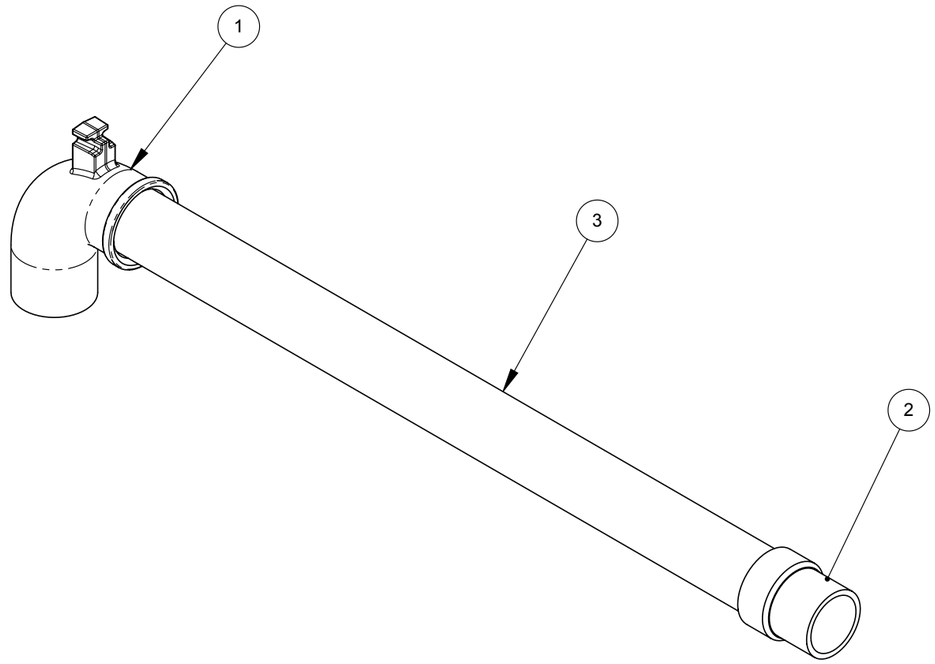




Vacuum Shoe and Skid Assembly Parts List

Item	Part Number	Description	Qty
1	000-057-048	GASKET, RX VACUUM HEAD	1
2	000-064-030	HEAD, SHOE, 4” CAST, ONE PIECE	1
3	000-094-058	NUT, #10-32UNF NYLOCK	2
4	000-107-245	SKID, CAST	1

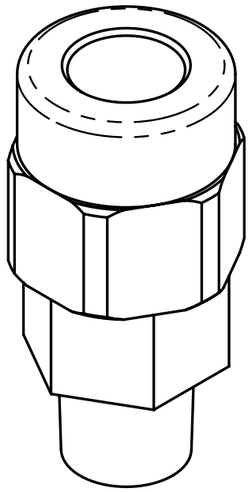
Figure 8-11. Edging Tool No Relief Assembly
000-163-152 Rev. B

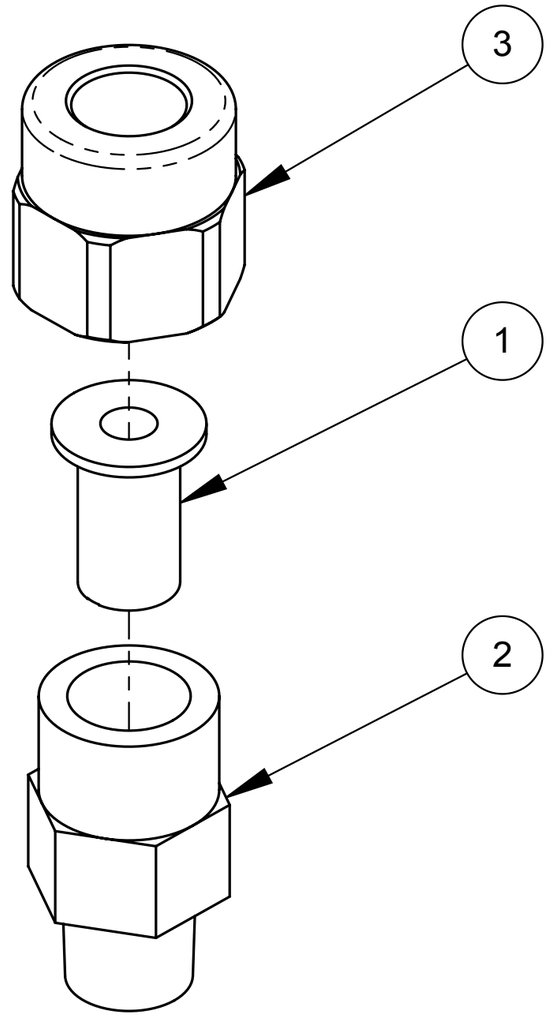


Edging Tool Assembly Parts List

Item	Part Number	Description	Qty
1	000-001-216	ADAPTER, EDGING - COATED E-04	1
2	000-052-432	CUFF, 1-1/2” X 2-1/8”	1
3	000-125-949	TUBE, EDGING TOOL - NO RELIEF	1

Figure 8-12. Cartridge Filter Assembly
000-049-261 Rev. A





Cartridge Filter Assembly Parts List

Item	Part Number	Description	Qty
1	000-049-052	FILTER CARTRIDGE,1/4”BRASS	1
2	000-052-171	HOUSING, 1/4” BRASS FILTER	1
3	000-094-118	NUT, BRASS JET X 1/4” FNPT	1

9 - Repair and Replacement

FELT VACUUM SEAL

The felt vacuum seal plays an important part in the optimum performance of your RX20. If the part is worn or unlubricated, it will not form a proper seal. Lack of a proper seal will impair the vacuuming capabilities of the unit and therefore leave behind more water in the carpet than is desirable.

To replace the vacuum seal:

1. First, remove the vacuum head assembly as previously described.
2. Using a pocket knife or similar tool, carefully pry the seal up and lift it out. If the seal appears worn or glazed so that it will not lubricate well, turn it over (see Figure 9-1). If that does not work, or if it is damaged, replace it with a new seal.

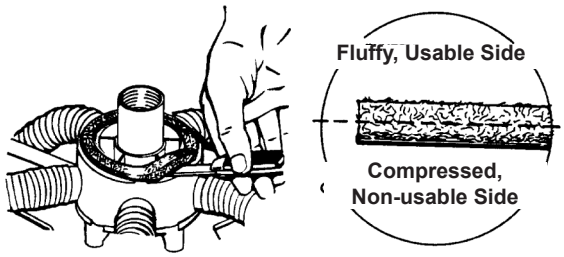


Figure 9-1. Carefully Pry Seal Up and Lift Out

3. Chem-Dry recommends changing the felt seal after 10 hours of use. Replace it with a seal that has been pre-soaked in a quality 30 weight SAE motor oil .
4. Press the seal in place and saturate it with the motor oil. If a flattened seal will be re-used, place the used seal in an oil bath to rejuvenate it.

NOTICE

For the seal's oil bath, use a small receptacle the size and shape of a tuna fish can (see Figure 9-2; a plastic container for this purpose is included in the Harris Research Service Kit.

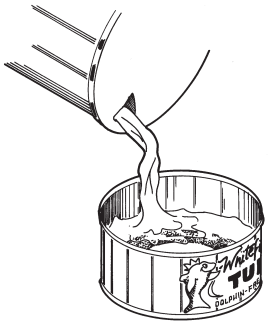


Figure 9-2. Use Can to Hold Oil for Seal

HIGH PRESSURE VALVE ASSEMBLY

In the event that the valve assembly needs to be replaced, follow this procedure (see Figure 9-3).

1. Remove the 440 male quick connect (A) with a wrench.
2. Remove the five hex head screws (B) in the back plate on the handle and lift the back panel off.
3. Disconnect the stainless steel hose from the bottom of the valve assembly (C).
4. Remove the bolt (D) holding the trigger.
5. Remove the two bolts (E) holding the valve assembly in the handle.
6. The valve may now be rebuilt or replaced.

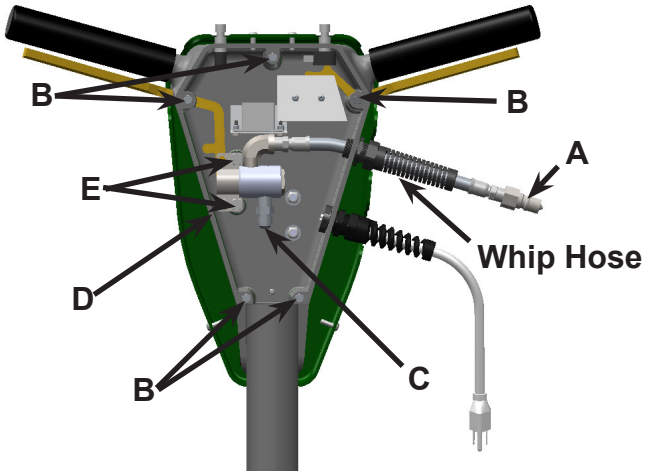


Figure 9-3. Valve Assembly Parts

NOTICE

If the valve has been frozen, inspect it for leakage before re-installing the back plate.

Locking Mechanism (Bushing Replacement)

If the locking mechanism becomes loose, tighten it by following these simple steps:

1. Remove the cotter pin and dog point set screw from the lock collar. (see Figure 9-4)
2. Hold onto the lock collar and spring while sliding the pull rod out of the handle.

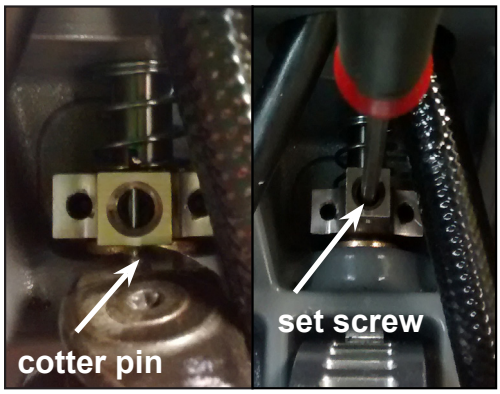


Figure 9-4. Remove cotter pin and remove dog point set screw

⚠WARNING

THE SPRING, 0.60OD X 7/8”LG COMPRESSION (000-155-107) HAS STORED ENERGY FROM BEING COMPRESSED. USE EXTREME CAUTION WHEN REMOVING AND INSTALLING IT

3. Carefully remove the SPRING, 0.60OD X 7/8”LG COMPRESSION (000-155-107) and COLLAR, ROD LOCKING – RX20 (000-020-076) from their cavity in the lower handle casting.
4. Using a flat blade screw driver between the flange and the casting, remove the bushing.
5. Install a replacement bushing by carefully aligning the bushing in the hole and slowly pressing it in using a flat washer to protect the flange and a pry-bar to push the bushing into place or by using a 5/16” bolt, nut, and flat washers to pull it into place.
6. Temporarily insert the ROD, HANDLE ADJUSTING ASSEMBLY through the hole in the upper rod support bracket, through the clearance hole in the lower casting and through the bore of the bushing installed in step 6. Ensure that the rod slides completely through and smoothly in the bore without binding. If the rod does not slide smoothly in the bore or will not slide completely through the bore, remove the ROD, HANDLE ADJUSTING ASSEMBLY and carefully and lightly ream the bushing bore until the rod assembly slides through it without binding.

CAUTION

DO NOT REMOVE MORE MATERIAL FROM THE BORE THAN NECESSARY FOR THE ROD TO SLIDE SMOOTHLY.

7. Remove any debris from reaming the bores and place SPRING (000-155-107) and COLLAR, ROD LOCKING – RX20 in the pocket of the lower handle, above the bushing flange and approximately centered them with the bushing bore.
8. Re-install the spring and lock collar in the casting and reinstall the rod into the handle until it fully “seats” into one of the pockets in the latch plate.

CAUTION

Ensure the rod is fully seated in the pocket of the LATCH PLATE.

9. Apply Loctite(B1) to the threads of the SCREW, ¼-20 UNC DOG POINT SET (000-143-735) and thread the screw into the center hole of the COLLAR, ROD LOCKING – RX20 (000-020-076) ensuring that the dog point of the set screw completely enters the blind hole in the rod. Torque the set screw to 45-55 In-lbs. (see Figure 9-5)

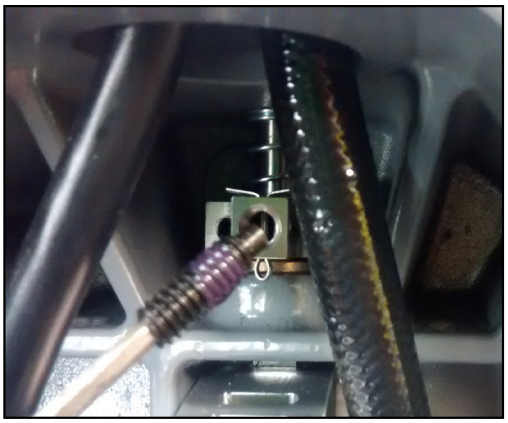


Figure 9-5. Reinstall dog point set screw

10. Actuate the locking mechanism several times by pulling up on the knob and releasing it to ensure it operates smoothly without binding.
11. Using a pair of needle nose plyers, insert a PIN 1/16" X ½" LG COTTER S/S (000-103-021) into one of the two holes in the center tower of the COLLAR, ROD LOCKING – RX20 (000-020-076) to lock the SCREW, ¼-20UNC DOG POINT SET (000-143-735) into the COLLAR. The two holes are different distances from the rear of the set screw. Use whichever hole is closest to the rear of the set screw, but will allow the cotter pin to be inserted all the way through the lock collar. Once installed, bend the ends of the cotter pin over so it will not fall out.

TRANSPORT AND/OR STORAGE

Whenever your RX20 is transported or stored, it is recommended that the cleaning head (star assembly) be removed. The machine will then sit flat on the floor and remain more stable, especially during transport.

HANDLE LATCH ASSEMBLY: LATCH PLATE REPLACEMENT AND ADJUSTMENT INSTRUCTIONS

Refer to HydraMaster Engineering Assembly Drawings: 604-051-105 and 604-999-105 for complete details

CAUTION

PROPERLY SUPPORT THE OPERATOR HANDLE DURING THE REMOVAL AND INSTALLATION OF THE LATCH ASSEMBLY SO IT DOES NOT FALL AND CAUSE INJURY.

CAUTION

ALL NECESSARY PERSONNEL PROTECTIVE EQUIPMENT - INCLUDING SAFETY GLASSES - SHALL BE WORN WHILE PERFORMING THE FOLLOWING SERVICE

1. Using an Allen head wrench or Allen head socket, remove the SCREW, ¼-20UNC X 1.50” FLAT HEAD SOCKET (000-143-709) and the ROD, LIFTING HANDLE COATED (000-140-056) from the rear of the PLATE, HANDLE ADJUSTING (000-105-764). Set the screw and the rod aside to be reused during reassembly.
2. Using an plyers and flat blade screw driver or a mechanics pick, remove both of the RING, E-CLIP X ½” (000-139-009) from each end of the AXLE, WHEEL RX20 (000-177-034).

⚠WARNING

THE RING, E-CLIP X ½” (000-139-009) HAS STORED ENERGY FROM TENSION. USE EXTREME CAUTION WHEN REMOVING AND INSTALLING THEM

3. Remove each WHEEL, 8” from the AXLE, WHEEL RX20 (000-177-034) and set them aside for reassembly.
4. Using an Allen wrench, remove both SCREW, ¼-20UNC X ¼” SET (000-143-737) from the lock collars on each side of the BRACKET, HANDLE TO BASE-RX20 COATED(000-015-1327). Set them aside for re-use during re-assembly.
5. Using a ½” wrench or socket and socket wrench, remove the SCREW 5/16-18UNC X ¾” LG (000-143-012) and WASHER 5/16 FLAT (000-174-049) from the PLATE, HANDLE ADJUSTING (000-105-764). Set them aside for re-use during re-assembly.
6. Using a Allen wrench or Allen socket and a 7/16 wrench or socket, remove SCREW, ¼-20UNC X 1.75”LG SOCKET HEAD (000-143-008) and NUT, ¼-20 NYLOCK (000-094-009) and set them aside for re-use during re-assembly.

7. Slide the axle out of the BRACKET, HANDLE TO BASE-RX20 COATED (000-015-1327) through the side of the lower handle casting, and all the way through the PLATE, HANDLE ADJUSTING (000-105-764). It may be necessary to rotate the axle as you slide it and / or to wiggle the PLATE, HANDLE ADJUSTING (000-105-764) so the axle will pass through and free it from the assembly. Once free of the axle, you may replace the PLATE, HANDLE ADJUSTING (000-105-764) with a new one, orientating it so the pockets face up and the mounting hole is toward the motor and gear box.

CAUTION

Ensure the rod is fully seated in the pocket of the LATCH PLATE.

8. Slide the axle back through the lower handle casting and through the lock collar in the BRACKET, HANDLE TO BASE-RX20 COATED (000-015-1327) and allow it to protrude far enough to place the wheel's on.
9. Align the PLATE, HANDLE ADJUSTING (000-105-764) mounting hole with its corresponding mounting hole in the BRACKET, HANDLE TO BASE-RX20 COATED(000-015-1327). Apply LOCTITE (B1) to the threads of the SCREW 5/16-18UNC X ¾" LG (000-143-012), place the WASHER 5/16 FLAT (000-174-049) on the screw and insert the screw through the bracket and into the plate. Tighten the screw using a ½" wrench or socket.
10. Reinstall the WHEEL, 8" on each end of the axle.

⚠WARNING

THE RING, E-CLIP X ½" (000-139-009) HAS STORED ENERGY FROM TENSION. USE EXTREME CAUTION WHEN REMOVING AND INSTALLING THEM

11. Reinstall the two RING, E-CLIP X ½" (000-139-009) – one on each end of the axle using a pair of plyers.
12. Apply LOCTITE (B1) to both SCREW, ¼-20UNC X ¼" SET (000-143-737) and install them into the lock collars on each side of the BRACKET, HANDLE TO BASE-RX20 COATED(000-015-1327). Tighten them using an Allen wrench.
13. Actuate the locking mechanism several times by pulling up on the knob and releasing it to ensure it operates smoothly without binding.
14. Apply LOCTITE (B1) to the SCREW, ¼-20UNC X 1.50" FLAT HEAD SOCKET (000-143-709). Insert the screw through the hole in the ROD, LIFTING HANDLE COATED (000-140-056) and into its mounting hole in the rear of the PLATE, HANDLE ADJUSTING (000-105-764). Use an Allen wrench to snug the screw. Do not over tighten.

Freeze-related damage of any RX20 component will VOID all warranties on water- or chemical-related components, internal or external.

Hard water deposits and buildup in the RX20 will VOID all warranties on affected components.

All recommended maintenance must be performed by competent service personnel.

Records of periodic maintenance must be kept and copies may be required to be furnished to HydraMaster before this warranty is honored.

Coverage Schedule

Frame, Handle, Body	3 years
Gear Box	1 year
Motor	1 year
Valves, Filters, Hoses	1 year

10 - Troubleshooting

1.0 LOW VACUUM FLOW AT THE CLEANING HEADS

Possible Cause		Solution
1.1	Hub not sealing properly.	Replace felt seal with a lubricated one.
1.2	Restricted air flow.	Remove cleaning head and clear all vacuum lines and heads of debris.
1.3	Low vacuum flow from power	Refer to the Troubleshooting section of the source equipment manual.

2.0 LOW WATER FLOW AT CLEANING HEADS (INDICATED BY IRREGULAR WATER TEMPERATURE)

Possible Cause		Solution
2.1	Restricted jets.	Remove jets and clear them of debris.
2.2.	Kinked or clogged solution hose	Remove hose. Repair or replace.
2.3	Cleaning hub not properly threaded	Remove cleaning hub from shaft. to shaft. Clean and rethread onto shaft.

3.0 WATER LEAK AT ROTARY UNION

Possible Cause		Solution
3.1	Foreign matter in rotary union seal.	Dismantle rotary union. Clean. Re-assemble and install.

4.0 WATER LEAK AT VALVE

Possible Cause		Solution
4.1	Ruptured plunger or valve O-ring.	Repair or replace damaged plunger, O-ring, seal. Check for freeze damage.

5.0 LOSS OF OIL FROM GEAR BOX

Possible Cause		Solution
5.1	Loose or ruptured oil seal.	Replace damaged oil seal. Refill gear box with oil.

6.0 NO POWER

Possible Cause	Solution
6.1	RX20 Have an electrician inspect unit for possible wiring or motor problems.
6.2	Locate an unused power source.
6.3	Repair or replace gear box

7.0 HEAD WOBBLES DURING OPERATION

Possible Cause		Solution
7.1	One leg of cleaning head is bent.	Straighten leg

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11 - Warranty Information

HydraMaster warrants Rotary Extractor machines of its manufacture to be free from defects in material and workmanship if properly installed, maintained, and operated under normal conditions with competent supervision. No person, agent, representative or dealer is authorized to give any warranties on behalf of HydraMaster, nor to assume for HydraMaster any other liability in connection with any HydraMaster products. This warranty shall extend to the original purchaser of said equipment for the periods listed below from date of installation. If repairs or replacements are made by the Purchaser without HydraMaster's written consent, HydraMaster's warranty shall cease to be in effect.

Machinery, equipment and accessories furnished by HydraMaster, but manufactured by others, are warranted only to the extent of the original manufacturer's warranty to HydraMaster unless otherwise specified in the listing below.

HydraMaster agrees, at its option, to repair at the point of shipment, or to replace without charge, any parts or parts of products of HydraMaster's manufacture, which within the specified warranty period shall be proved to HydraMaster's satisfaction to have been defective when shipped, provided the purchaser promptly notifies HydraMaster, in writing, of such alleged defect. HydraMaster will pay all freight and transportation charges within the United States, via normal ground shipping means, for replacement of parts covered under this warranty.

This warranty covers parts, as specified, and does not cover labor which may be necessary in completing repairs. HydraMaster's liability to Purchaser, whether in contract or in tort arising out of warranties, representation, instructions, or defects from any cause shall be limited to repairing or replacing the defective part or parts. To qualify for warranty coverage, defective parts must be returned to HydraMaster within 30 days. No warranty liability whatsoever shall attach to HydraMaster unless and until HydraMaster has received payment in full for the warranted machine or part.

Except as stated in this section and in the proceeding section and except as to title, there are no guarantees or warranties of merchantability, fitness, performance or otherwise, express, implied or statutory, and HydraMaster shall have no liability for consequential, incidental or other damages howsoever caused.

All components not specifically referenced in the schedule below are covered under this warranty for a period of one (1) year, excepting those parts which are considered, by HydraMaster, to be expendable in normal use, including but not limited to paint, labels and other cosmetic parts or features.