

International Chem-Dry® PowerHead Owner's Manual



Harris Research, Inc.



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1 - General Information

CONGRATULATIONS,

You now own a piece of equipment that incorporates the latest in carpet cleaning technology. The Chem-Dry PowerHead's features will almost certainly increase the productivity of you 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 Chem-Dry PowerHead is REVOLUTIONARY. 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 effectiveness.

Using the PowerHead in your business will turn you into a professional carpet cleaning operator, rather than a professional laborer.

Once again, congratulations to another Chem-Dry cleaning professional who will not wait for tomorrow, and who will not have to compete against the PowerHead. The competition will have to compete with you!

AN EVOLUTION THAT HAD TO HAPPEN

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

The PowerHead's electric motor drives its precision transmission which, in turn, rotates the cleaning head assembly. The Natural® cleaning solution is injected through the center of the stainless steel gearbox shaft directly to the five spray jets. Soiled solution is then extracted from the carpet by five extraction cleaning heads and drawn through the aluminum exhaust manifold to the Hot Carbonation Unit (HCU) recovery tank.

CONSTRUCTION

The base, manifolds, handle, gearbox housing, and cleaning heads are all cast aluminum. Other parts are either metal, stainless steel or high impact plastic.

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CONTACT INFORMATION

If you have any questions regarding the operation, maintenance or repair of this machine, please contact your local distributor.

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): _____

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WARNINGS, CAUTIONS AND NOTICES

⚠ WARNING

Harris Research, Inc. 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

	Chem-Dry PowerHead
Length	58.42 cm (23")
Base Width	38.1 cm (15")
Height - Standard	109.22 cm (43")
Weight	31.75 kg (70 lbs)
Motor	1/2 Hp, 230 V, 50 Hz 1,450 rpm Input, 109 rpm Output Totally Enclosed Fan-Cooled (TEFC) Permanently Lubricated Helical Gear Drive
Oil Capacity	0.34 kg (12 oz)
Star Head Plate	Replaceable, Spring Steel Arms
Cleaning Heads	Five Cast Aluminum
Solution Jets	Five Stainless Steel, 95015
Solution Strainer	Mesh, Stainless
Solution Valve	Stainless Steel, High Pressure
Cleaning Rate	Five Heads Rotating at 109 rpm = 545 Cleaning Passes/Minute
Handle Assembly	Foam Grips, Adjustable Height
Transportation Wheels	20.32 cm diameter, 3.81 cm wide (8" diameter, 1-1/2" wide) Gray, Non-Marking
Electric Cord	15.24 m (50 ft) w/M-F IEC

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.

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3 - Assembly Instructions

To prepare your machine for use, follow these instructions:

1. Remove the machine from the packaging.
2. Inspect the machine carefully for any damage that may have occurred during shipping.
3. Check the gear box lubricant level (see page 6-3 of this Owner's Manual).
4. Attach the cleaning head to the base.
 - 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

Remove the solid shipping plug from the top of the gear box and replace it with the vented plug provided before operating the machine (see Figure 3-1 and Figure 3-2). Failure to follow these directions may result in damage to the gear box and seal.



Figure 3-1. Base with Cover

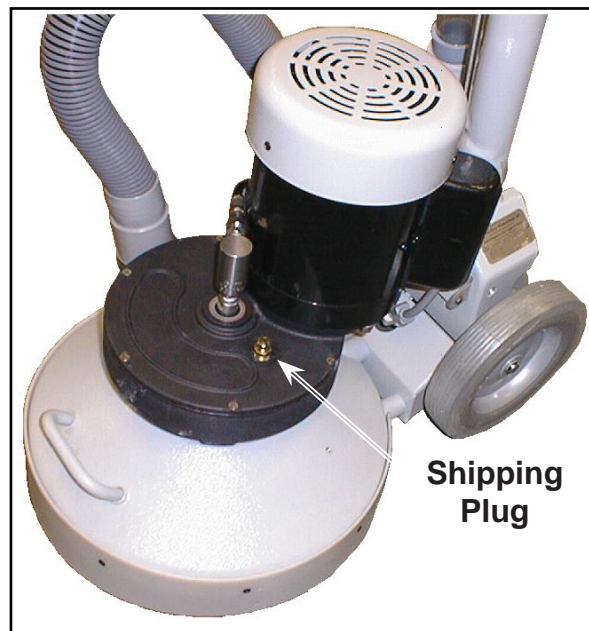


Figure 3-2. Base without Cover

5. Re-attach the cover onto the PowerHead.

Your machine is now ready to operate.

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4 - Operating Instructions

PREPARATION

Handle Adjustment

Push the clamp forward to loosen the linkage. Adjust the handle to a comfortable height. Pull clamp back 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 PowerHead will do the work for you.

Solution and Vacuum Hose Connections

Your PowerHead is equipped with one 440 stainless steel male quick connect for the solution hose and an 3.81 cm (1 ½") vacuum hose inlet (refer to Figure 4-1). The vacuum inlet requires a 3.81 cm I.D. and a 5.08 cm O.D. (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 15.24 m (50 ft) electrical cord on your PowerHead is a male/female IEC plug. Attach the female end to the receptacle on the handle. The male end must be attached to a small lead fitted with the appropriate plug. **This cord is not supplied by Harris Research.**

⚠ WARNING

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

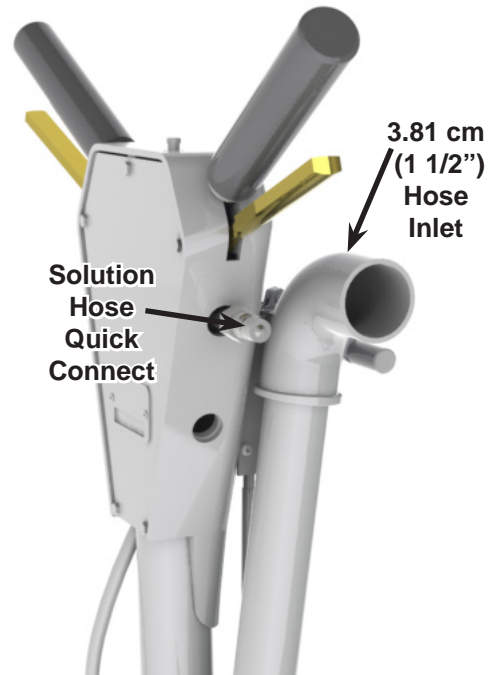


Figure 4-1. Solution and Vacuum Hose Connections

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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 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 low pressure carbonating solution spray. The air flows constantly while the PowerHead is in operation.

MANEUVERING THE POWERHEAD

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

1. To move the PowerHead to the right, lift the handle slightly. The more you lift or



Figure 4-2. PowerHead Maneuvers Like a Buffer

lower the handle, the faster the PowerHead will move.

2. 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 PowerHead, practice on an open carpeted area. Depress both the solution trigger and motor trigger and move the PowerHead slowly in a 0.91 – 1.52 m (3 – 5 ft) arc, as shown in Section 5 of this manual.

CAUTION

Do not operate your PowerHead on dry carpets. The friction generated by the revolving cleaning heads may damage fibers in the carpet.

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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.

EDGING TOOL

The edging tool is located on the front right-hand side of the PowerHead.

1. To remove, pull the edging tool upward until the alignment pin matches the large diameter of the key hole slot.
2. Pull the tool away from the PowerHead 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 pin into the key hole slot.
4. Gently push the edging tool into the elbow until it is snug.

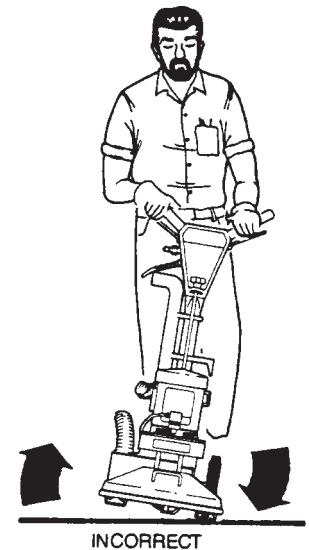


Figure 4-3. Incorrect Use of the Machine

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5 - Cleaning Information

CLEANING PATTERNS

For regular carpet cleaning, use an overlapping arc pattern, two times over the same area (one pass 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 (see Figure 5-1).

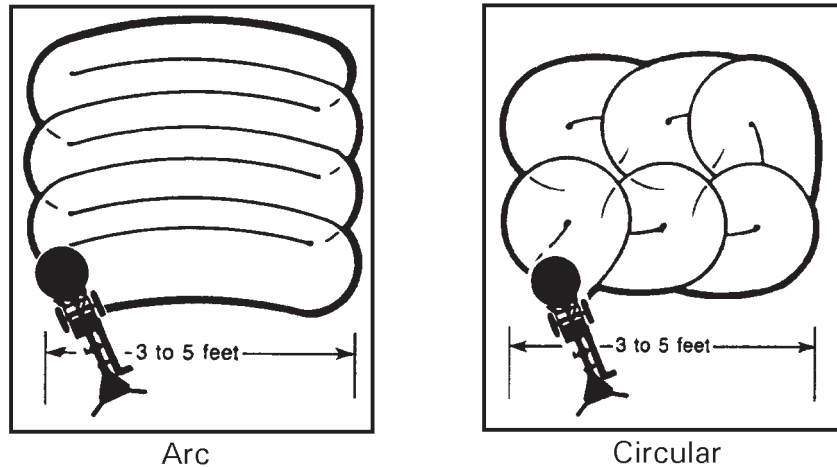


Figure 5-1. Recommended Cleaning Patterns

NOTICE

Dirtiest areas may require two or more cleaning passes. Using either pattern, you should develop a comfortable rhythm. To obtain maximum performance from your PowerHead, move it slowly and deliberately with a 50% overlap, giving it time to clean and extract. (Unlike a manual wand, the PowerHead 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.

The following cautions should be observed while cleaning:

CAUTION

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

CAUTION

DO NOT operate your PowerHead on hardwood floors.

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CAUTION

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

CAUTION

DO NOT operate your PowerHead on concrete floors. Sharp edges will develop on the extraction heads which will damage carpet fibers.

CAUTION

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

During the cleaning of 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 weak twist or snags.)

With a PowerHead, 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 PowerHead weighs approximately 32 kg (70 lbs) and rests on five 10.2 cm (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

The PowerHead may cause further damage to older, rubber-backed, glued down carpets that may be delaminating with age. When in doubt, DO NOT use your PowerHead.

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CLEANING HINTS

1. Most cleaners customarily clean their way out of an area or room. With the PowerHead, it is possible to clean into an area or room, as shown in Figure 5-2, 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 PowerHead is a very aggressive carpet cleaning machine 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.

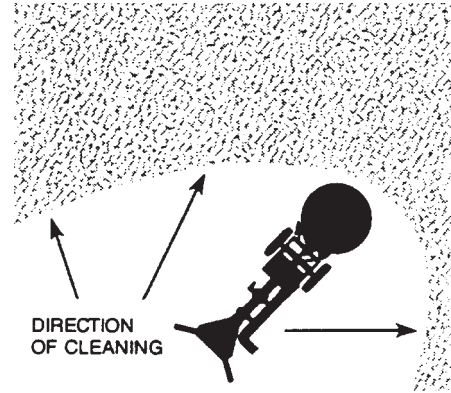


Figure 5-2. Clean into an Area or Room

The PowerHead 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.

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6 - Machine Maintenance

Good care and regular maintenance of your PowerHead will result in a long, dependable life for the unit. Keep in mind that your PowerHead will be in full view of your customer. A PowerHead 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 PowerHead is a durable, baked on 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 PowerHead. 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. Inspect the power cord for cuts, breaks, etc. Repair or replace as needed.
2. Inspect the vacuum hoses for breaks or tears. Repair or replace as necessary.
3. Visually inspect your PowerHead for water leaks, wear damage to the cleaning heads and so forth. Repair or replace as necessary.
4. Check the jet spray for evenness (see Figure 6-1). An uneven spray will cause improper flow of the cleaning solution.

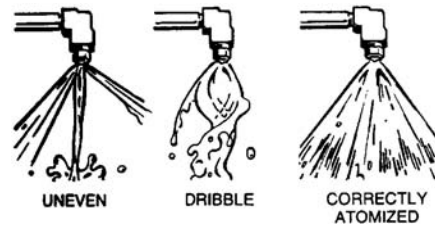


Figure 6-1. Check Jet Spray for Evenness

⚠ WARNING

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

5. Remove the cleaning head (see Figure 6-2). It unscrews in the same direction it turns during operation (or clockwise when looking at it from the underside).



Figure 6-2. Remove Cleaning Head

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6. Once you have loosened the assembly, spin it off with your hands. If the cleaning head is difficult to remove, you may use a 20 mm (3/4") socket wrench on the exposed center nut located under the gear box cover. To prevent the gear box from turning, remove the gear box cover to expose the output shaft. The output shaft will accept a 18 mm (5/8") wrench just below the rotary union.
7. Wash the cleaning heads and shroud assembly with a garden hose, being careful not to wet the electric motor assembly.
8. Clean any lint buildup from the cleaning heads and vacuum hoses (lint buildup will restrict proper air flow and prolong drying time).

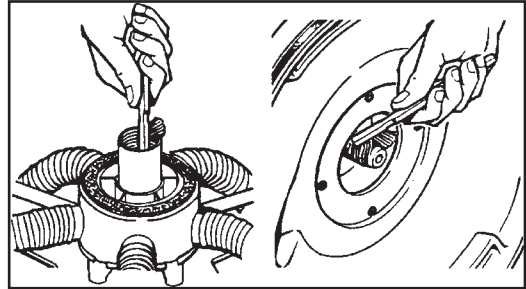


Figure 6-3. Remove Debris

NOTICE

Before cleaning the head assembly, place the rubber stopper (available in the Harris Service Kit) inside the threaded bore of the hub. This will prevent debris from entering the solution lines and clogging the spray jets.

9. Clean off any debris that may have accumulated on the gear box shaft or the inside threaded bore of the hub (see Figure 6-3).
10. Lubricate the felt vacuum seal on top of the hub with a quality, SAE 30 weight motor oil (or equivalent - see Figure 6-4). Also, put a few drops into the hub threads.
11. Coat the shaft with a Manufacturer Approved all-purpose spray lubricant (P/N 000-087-006 or equivalent) - see Figure 6-5. Re-install the vacuum head assembly onto the shaft by rotating it counterclockwise.

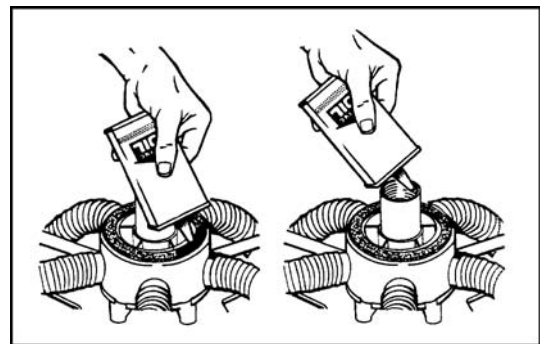


Figure 6-4. Lubricate Felt Vacuum Seal

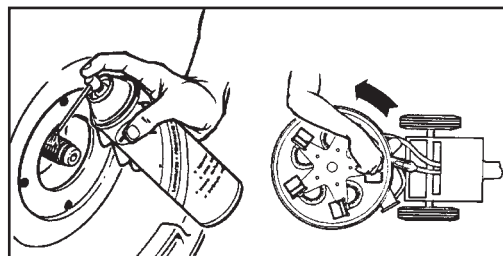


Figure 6-5. Lubricate the Shaft

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.

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CAUTION

While rotating the vacuum head assembly in the counterclockwise 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 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.

1. To check the oil level, remove the vent plug and look into the gear box.
2. Turn the cleaning head until you can see the inspection hole in the gear.
3. With the PowerHead sitting flat on a table or the floor, the oil level should be up to, but not above, the middle of the gear.
4. If oil needs to be added, use a quality SAE 80-90 weight gear oil (or equivalent).

NOTICE

When checking the oil level in the gear box, use a toothpick as a dip stick. The oil level should read 10 mm (3/8") deep.

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Locking Mechanism

If the locking mechanism becomes loose and fails to hold the handle in position, tighten it by following these simple steps:

1. Remove the retaining clip from one wheel, using a flat-bladed screwdriver (see Figure 6-6).
2. Remove the wheel from one side of the unit.
3. Ensure that the clamp is set to the locking position.
4. Tighten the setscrew as shown in Figure 6-7 to achieve the desired clamping force.
5. Re-install the wheel and retain with the original clip.
6. If the locking mechanism becomes loose again in the future, remove the wheel on the other side of the unit and tighten the other setscrew, in order to even up the wear on the clamping pins.



Figure 6-6. Remove Retaining Clip with Screwdriver



Figure 6-7. Tighten Setscrew

TRANSPORT AND/OR STORAGE

Whenever your PowerHead 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.

FREEZE WARNING AND PROTECTION

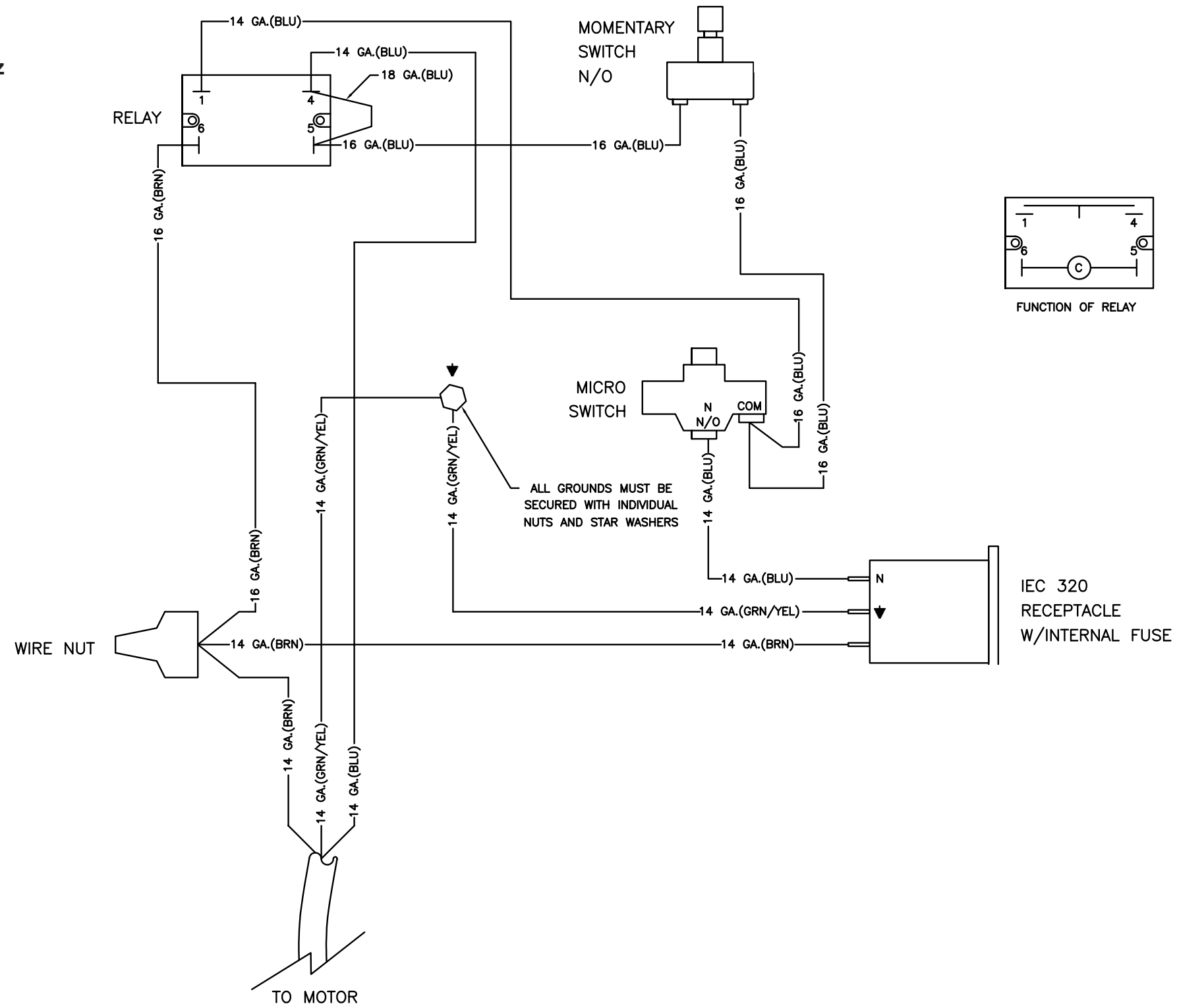
Your PowerHead can sustain damage from freezing, as can any equipment that functions with the use of water. Care must be taken to protect this tool from freezing just as you do your other equipment.

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

7 - Electrical Diagrams

Figure 7-1. Wiring Diagram - 230 V 50 Hz
4503 Rev. A



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8 - Assemblies and Parts Lists

The following Chem-Dry PowerHead major assemblies are detailed in this section:

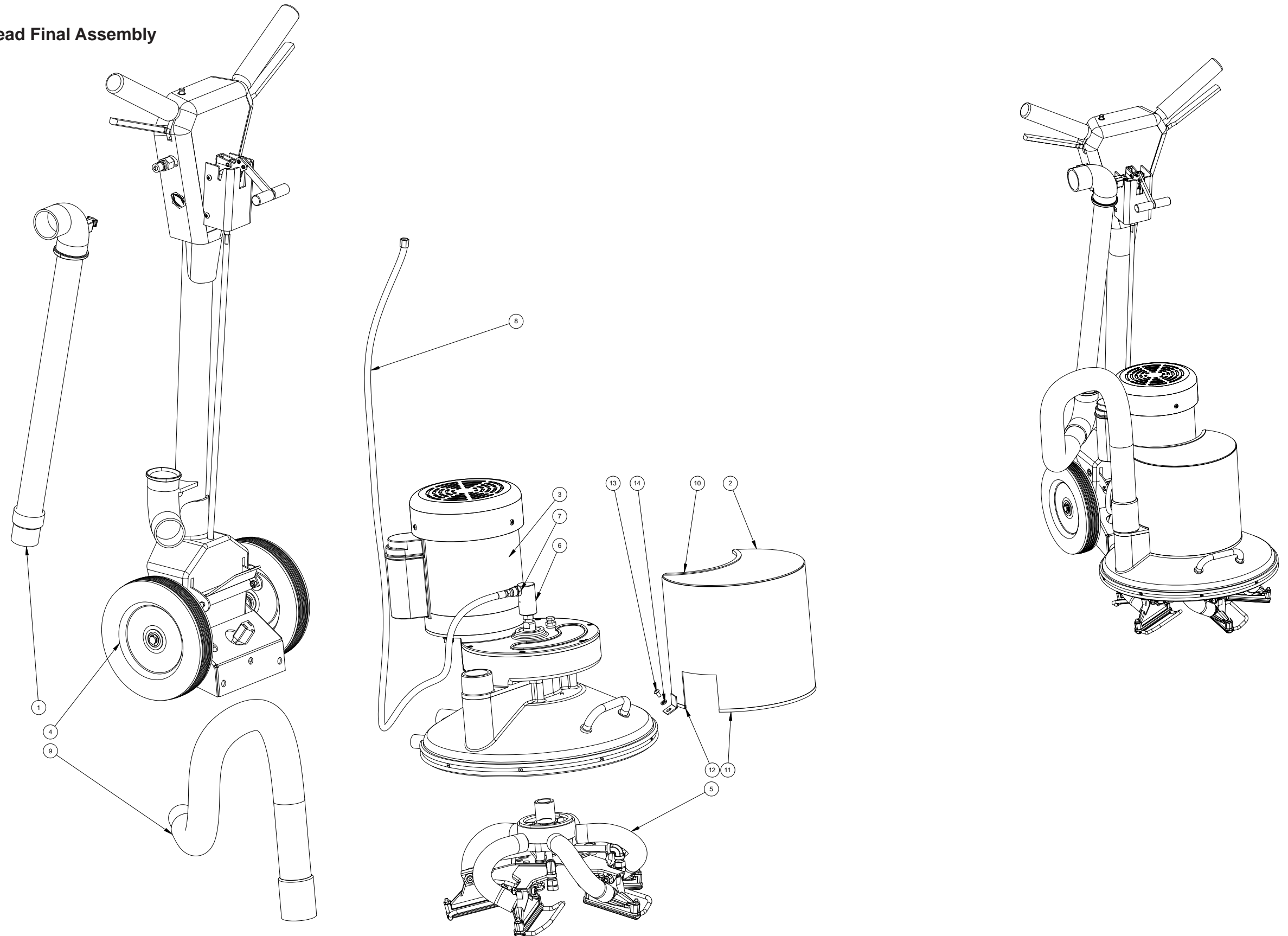
- Chem-Dry PowerHead Final Assembly Parts List
- Solution Valve Assembly Parts List
- Base and Drive Train Assembly Parts List
- Vacuum Head Assembly Parts List
- Vacuum Shoe and Skid Assembly Parts List
- Handle Locking Linkage Assembly Parts List
- Chem-Dry 230 V 50 Hz Rotary Extractor Assembly Parts List (P/N 604-999-212)

Table 8-1. Chem-Dry PowerHead Configuration

Chem-Dry PowerHead	Top Level P/N	Top Level Assembly Parts List			See This Page for Detailed Parts List
		P/N	Description	Qty	
Chem-Dry 230 V 50 Hz Rotary Extractor	700-041-212	000-057-047	Gasket, Felt Hub	2	Page 8-12 - 604-999-212 Chem-Dry Rotary Extractor
		000-105-018-1	Plate, Harris Research	1	
		604-999-212	Chem-Dry 230 Volt Rotary Extractor	1	

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Figure 8-1. Chem-Dry PowerHead Final Assembly
6395 Rev. A



Chem-Dry PowerHead Final Assembly Parts List

Item	Part Number	Description	Qty
1	000-163-103	Assembly, Chem-Dry Edging Tool	1
2	000-041-251	Cover, Chem-Dry	1
3	--	Assembly, Base and Drive Train	1
4	--	Assembly, Upper and Lower Handle	1
5	604-053-004	Assembly, Vacuum Head	1
6	000-052-522	Rotary Union, S/S	1
7	000-052-521	Nipple, 1/8" NPT X 1/4" JIC	1

Item	Part Number	Description	Qty
8	000-068-127	Hose, 3/8" X 48 1/2" w/ Inserts	1
9	000-068-041	Hose, Base Out	1
10	000-131-027	Trim Lock X 1.00"Lg.	1
11	000-131-027	Trim Lock X 8.25"Lg.	1
12	000-131-027	Trim Lock X 14.50"Lg.	1
13	000-143-107	Screw, #10-24UNC X 3/8" Lg. Button Head	2
14	000-174-036	Washer, #10 Flat Rubber Backed	2

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Figure 8-2. Handle Assembly

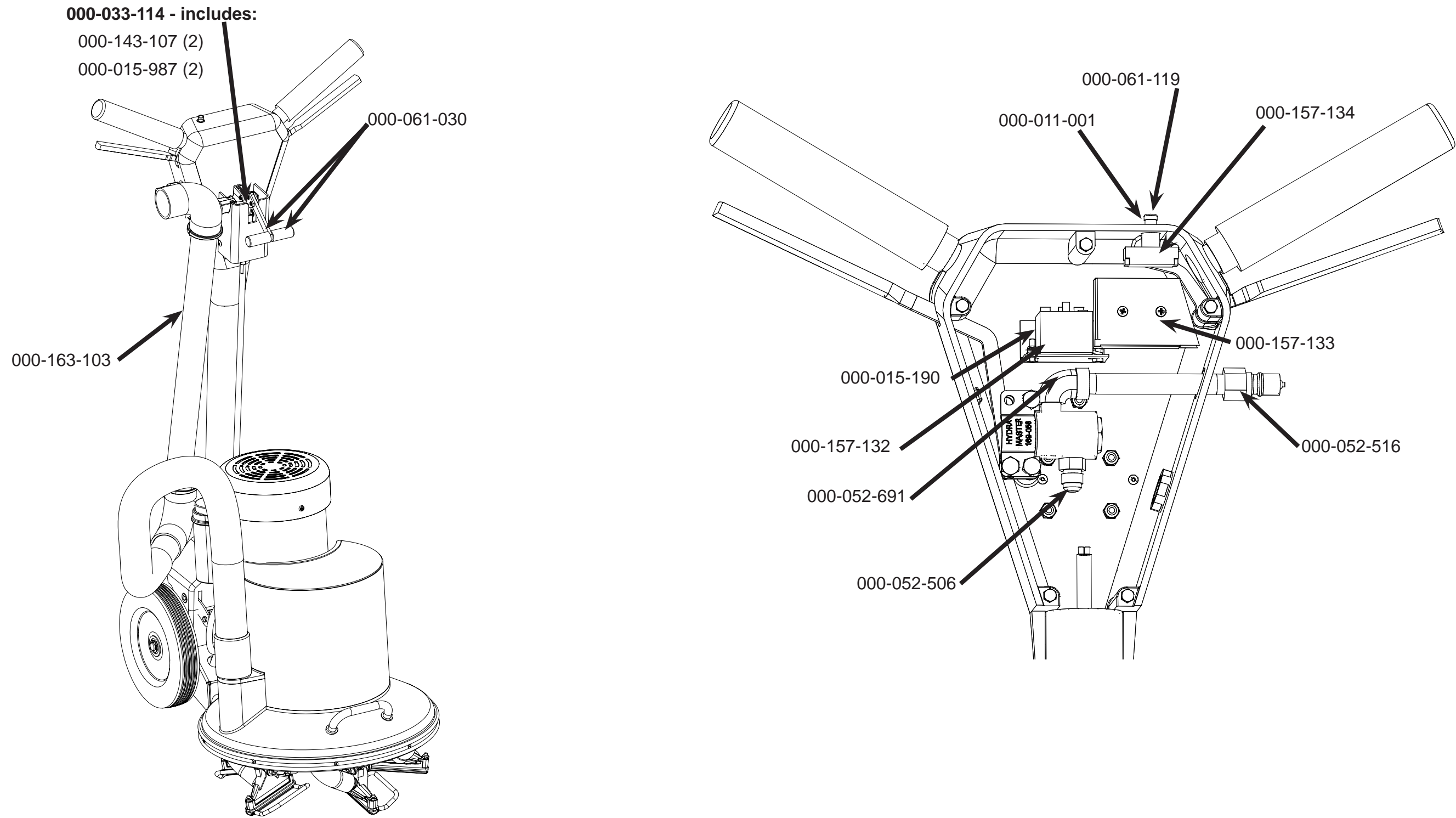
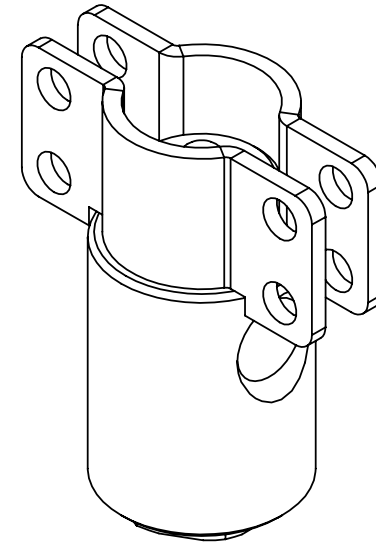
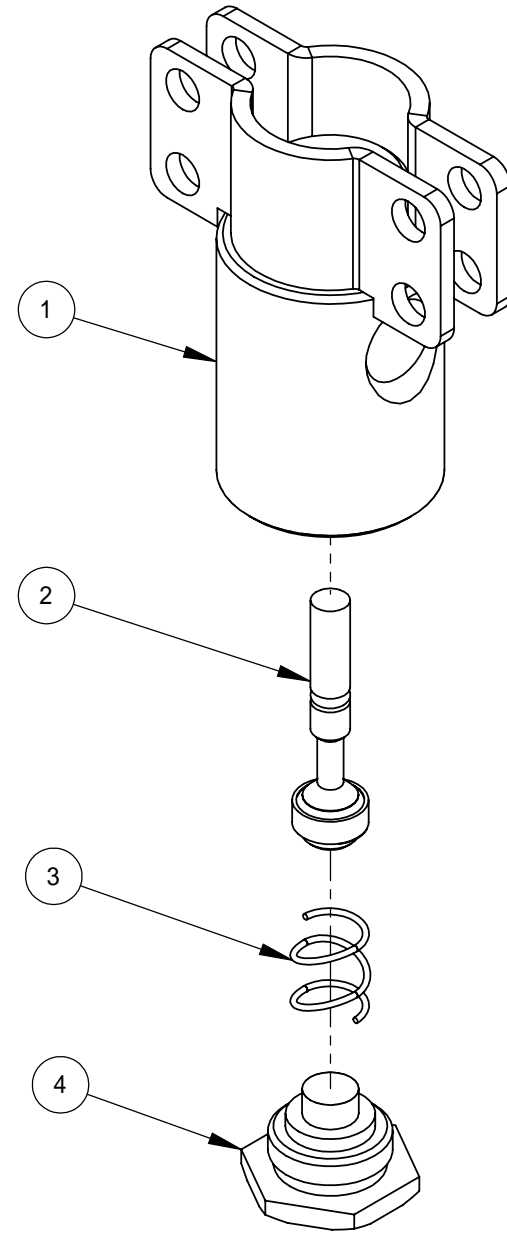


Figure 8-3. Solution Valve Assembly
6406 Rev. B

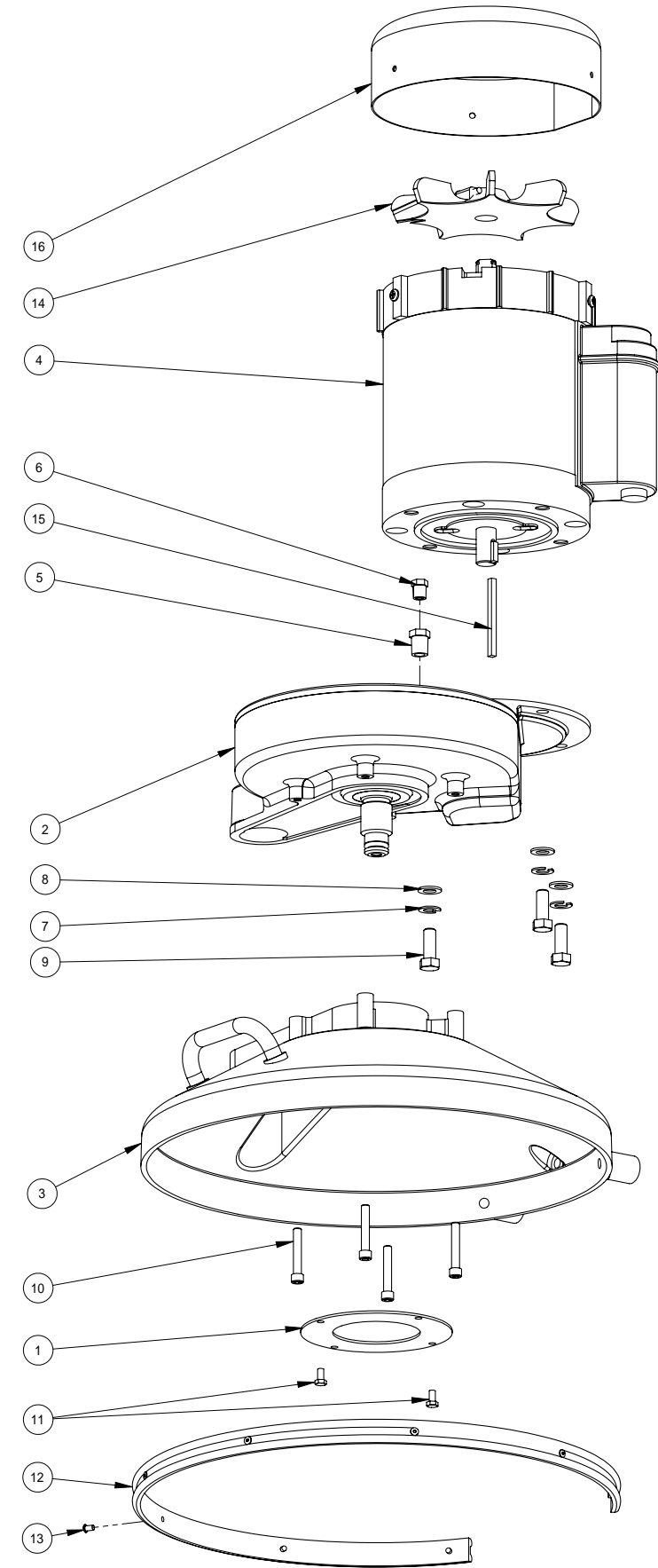
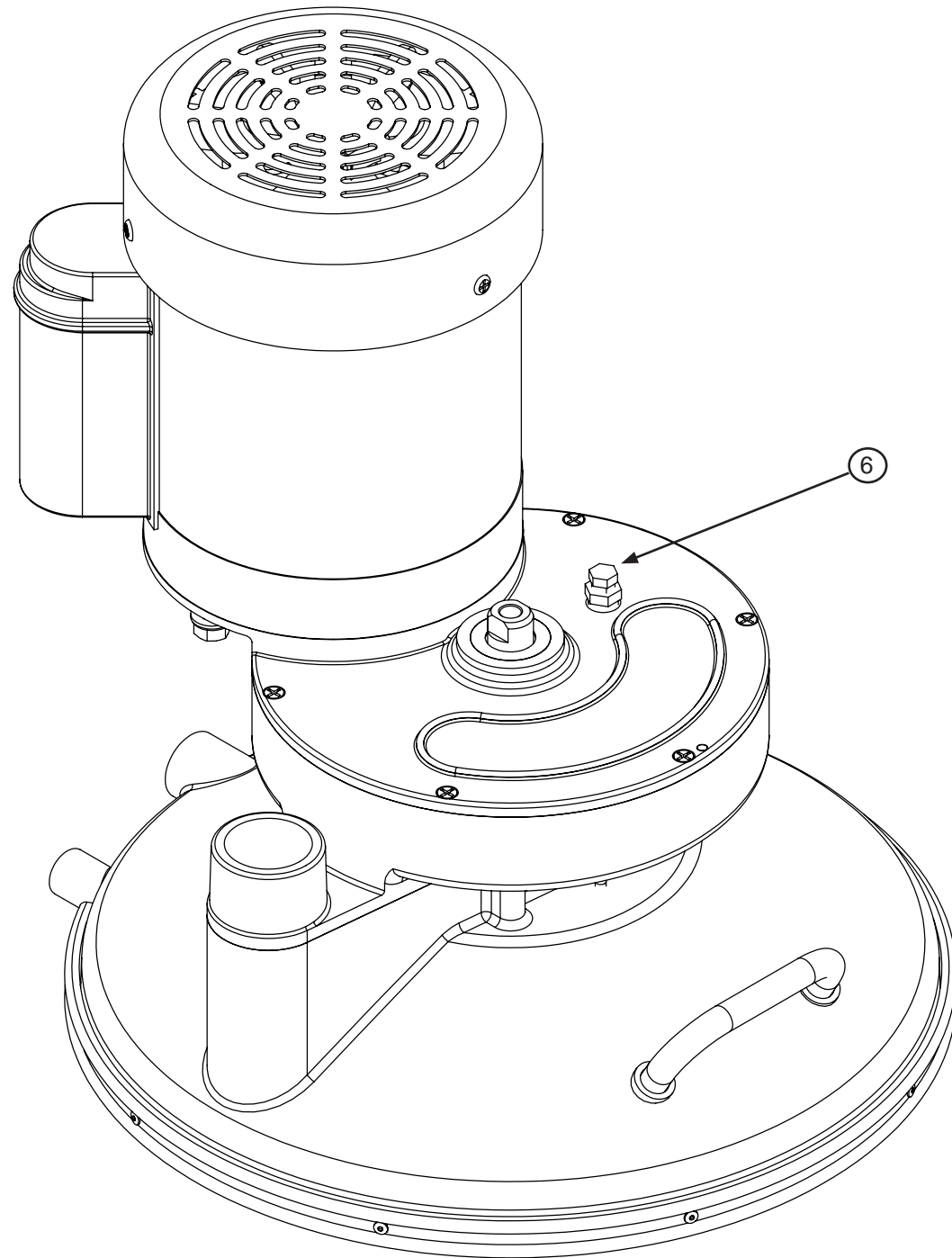


Solution Valve Assembly Parts List

Item	Part Number	Description	Qty
1	600-012-001	Valve Body, S/S Welded	1
2	600-012-003	Valve Stem Assembly	1
3	000-155-003	Spring, H/M Solution Valve	1
4	000-027-026	Cap, S/S Solution Valve	1

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Figure 8-4. Base and Drive Train Assembly
6392 Rev. C



NOTICE

Prior to operating the machine, replace the shipping plug (item 6, P/N 000-106-001) with the vented plug (P/N 000-106-014). See page 3-1 in this manual for more information.

Base and Drive Train Assembly Parts List

Item	Part Number	Description	Qty
1	000-105-008	Plate, Seal	1
2	000-059-001	Gear Box - Complete	1
3	000-006-011	Base w/ Handle - Weldment	1
4	000-091-016	Motor, 1/2 HP TEFC-22	
5	000-052-059	Bushing, 1/4" MPT X 1/8" FPT	1
6	000-106-001	Plug, 1/8" NPT*	1
7	000-174-057	Washer, 3/8" Lock	3
8	000-174-055	Washer, Flr Tech Latch Pivot	3

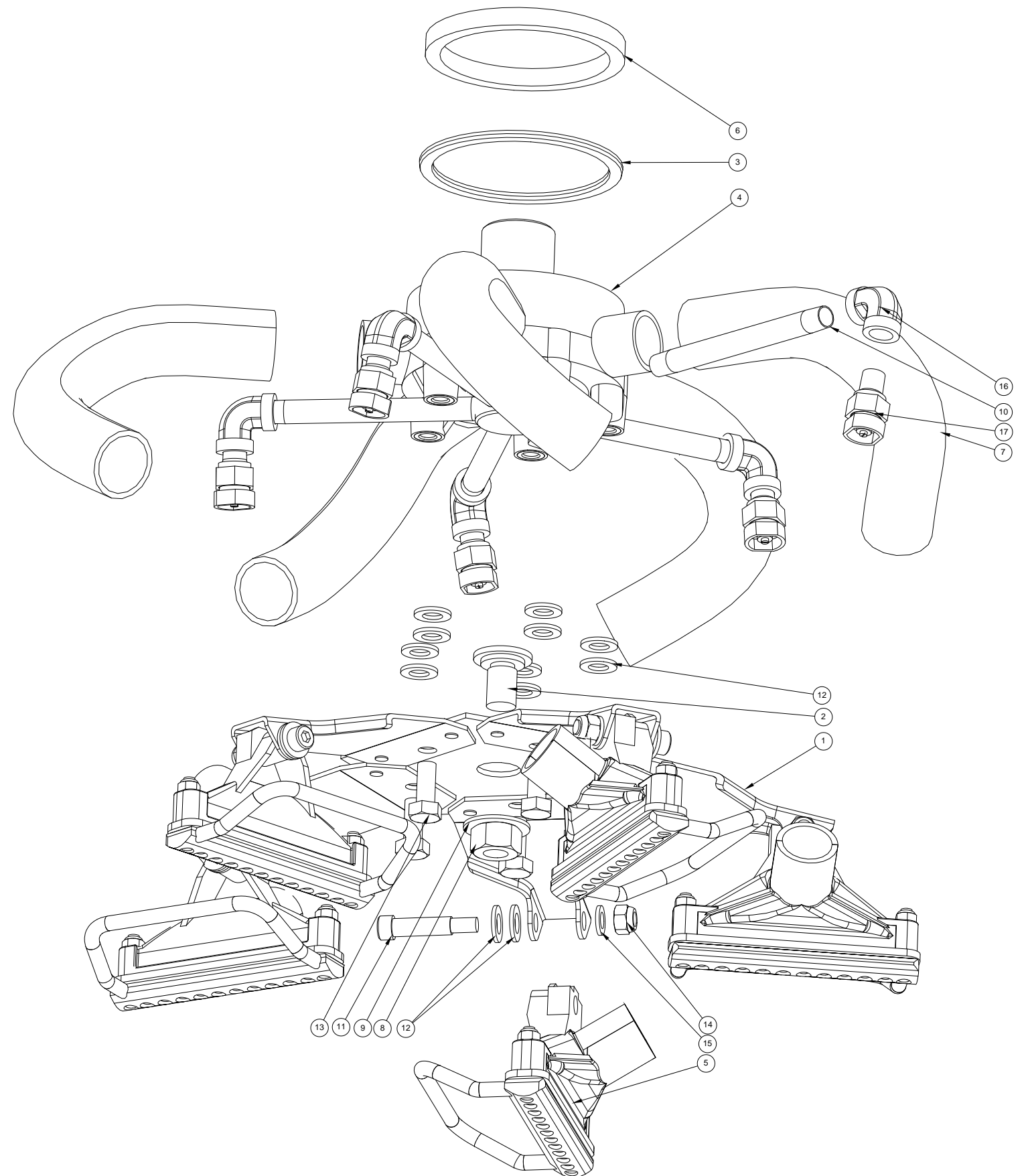
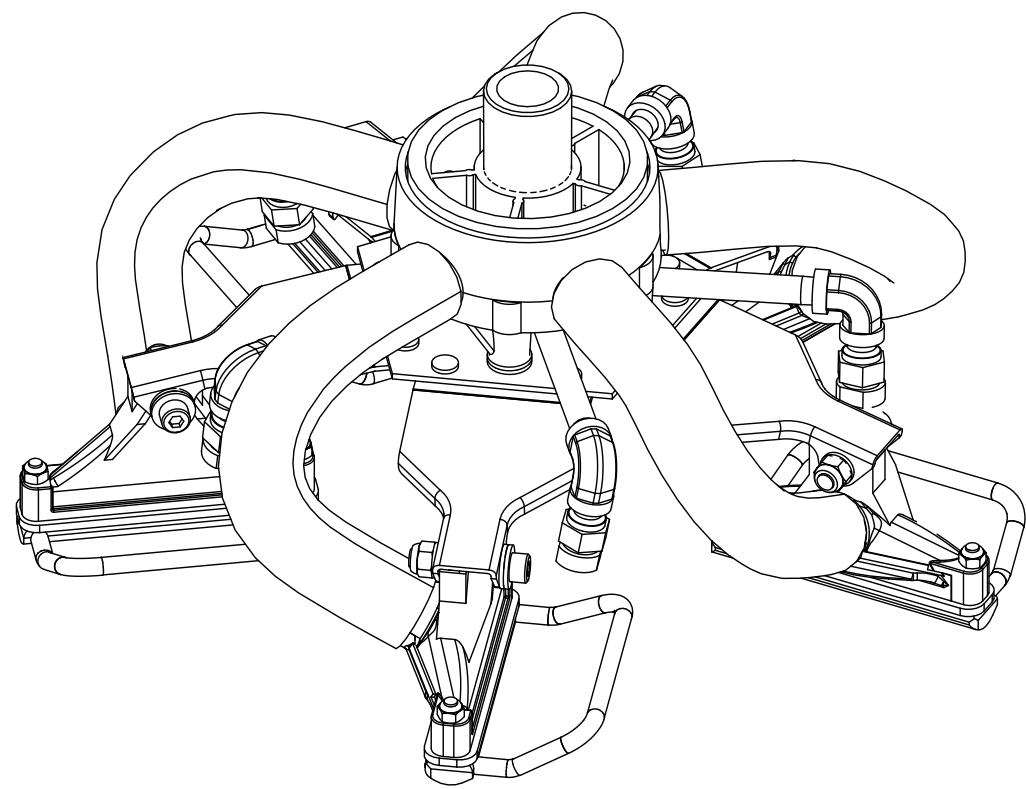
Item	Part Number	Description	Qty
9	000-143-096	Screw, 3/8"-16UNC X 1.00" Lg. Hex Head	3
10	000-143-075	Screw, 1/4"-20UNC X 1.50" Lg. Socket Head	4
11	000-143-166	Screw, #10-24UNC X 3/8" Lg. Hex Head	2
12	000-131-014	Gasket, Roto Shroud	1
13	000-040-003	Rivet, 1/8" X 5/16"	8
14	000-050-002	Fan, Motor	1
15	000-077-012	Key, 3/16" X 2.5" Lg. Class 2 Fit	1
16	000-041-479	Cover, 1/2 HP TEFC Motor - Gray	1

NOTICE

* Prior to operating the machine, replace the shipping plug (item 6, P/N 000-106-001) with the vented plug (P/N 000-106-014). See page 3-1 in this manual for more information.

International Chem-Dry® PowerHead

Figure 8-5. Vacuum Head Assembly
6408



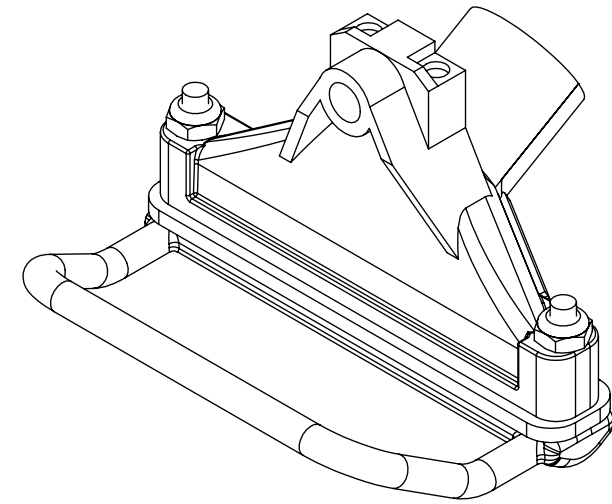
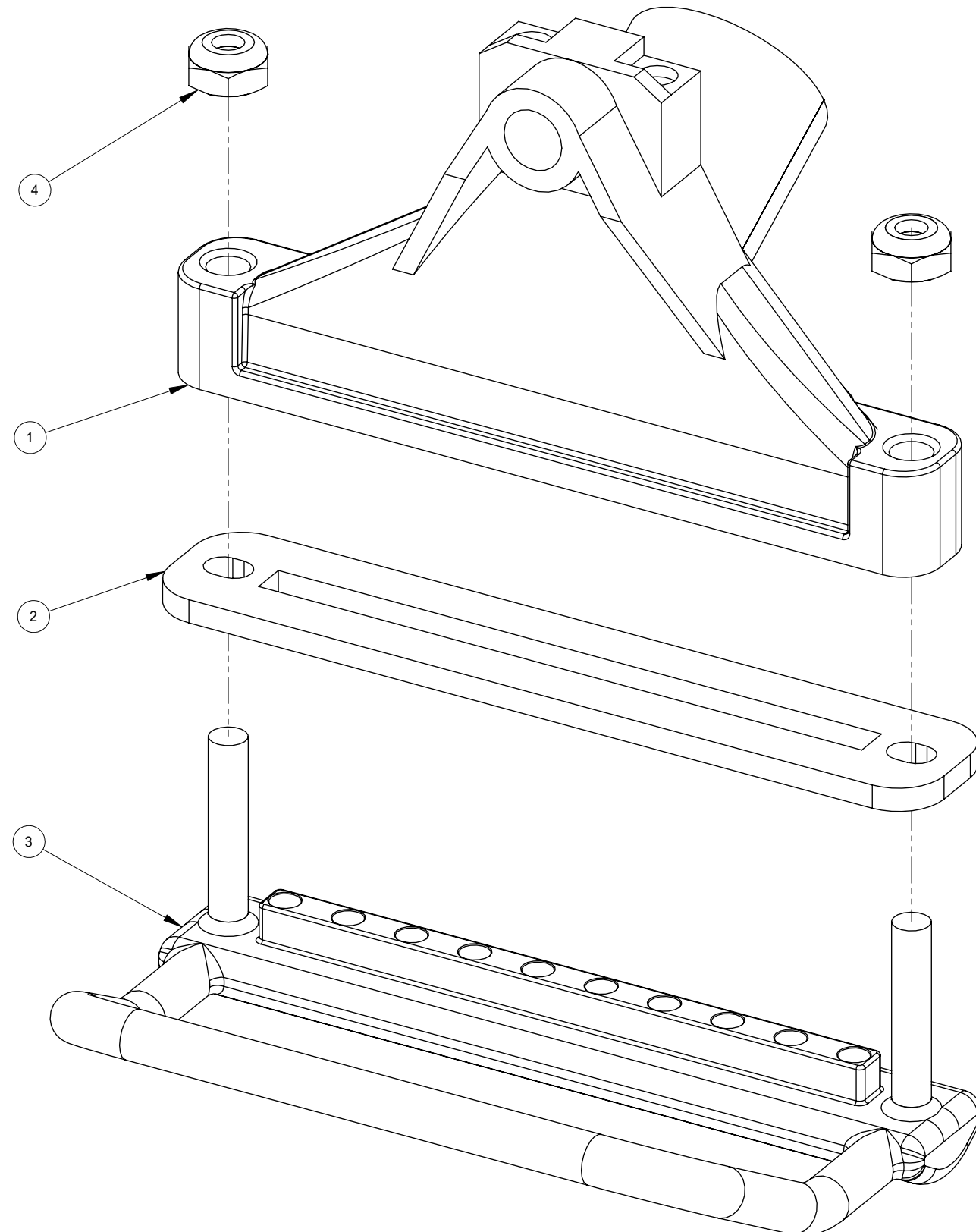
Vacuum Head Assembly Parts List

Item	Part Number	Description	Qty
1	000-107-089	Star, Assembly	1
2	000-143-045	Screw, 1/2" Modified Star Removal Bolt	1
3	000-139-001	Ring, Plastic	1
4	000-107-040	Rotary Extractor - Harris Plastic Hub	1
5	000-064-022	Rotary Extractor Vacuum Shoe and Skid	5
6	000-057-047	Gasket, Rotary Extractor Felt Hub	1
7	000-068-174	Hose, 1" Vacuum - Gray	5
8	000-094-019	Nut, 1/2"-13UNC Hex	1
9	000-174-006	Washer, 7/16" Flat	1

Item	Part Number	Description	Qty
10	000-052-515	Nipple, 1/8" NPT X 4" Lg.	5
11	000-143-162	Screw, 5/16" X 1" Lg. Stripper - 1/4"-20UNC	5
12	000-174-049	Washer, 5/16" Flat	20
13	000-143-012	Screw, 5/16"-18UNC X 3/4" Lg.	5
14	000-094-009	Nut, 1/4"-20UNC Nylock	5
15	000-174-003	Washer, 1/4" Flat	5
16	000-052-513	Elbow, 1/8" F X F	5
17	000-076-079	Jet, Quick Release	5

International Chem-Dry® PowerHead

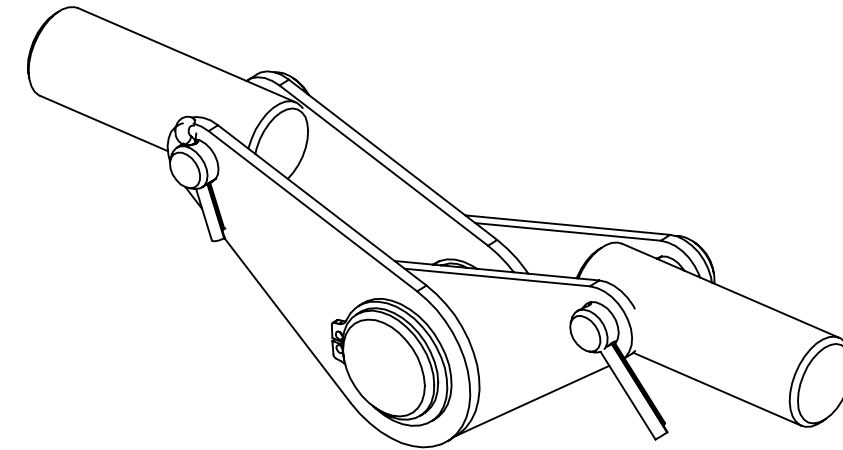
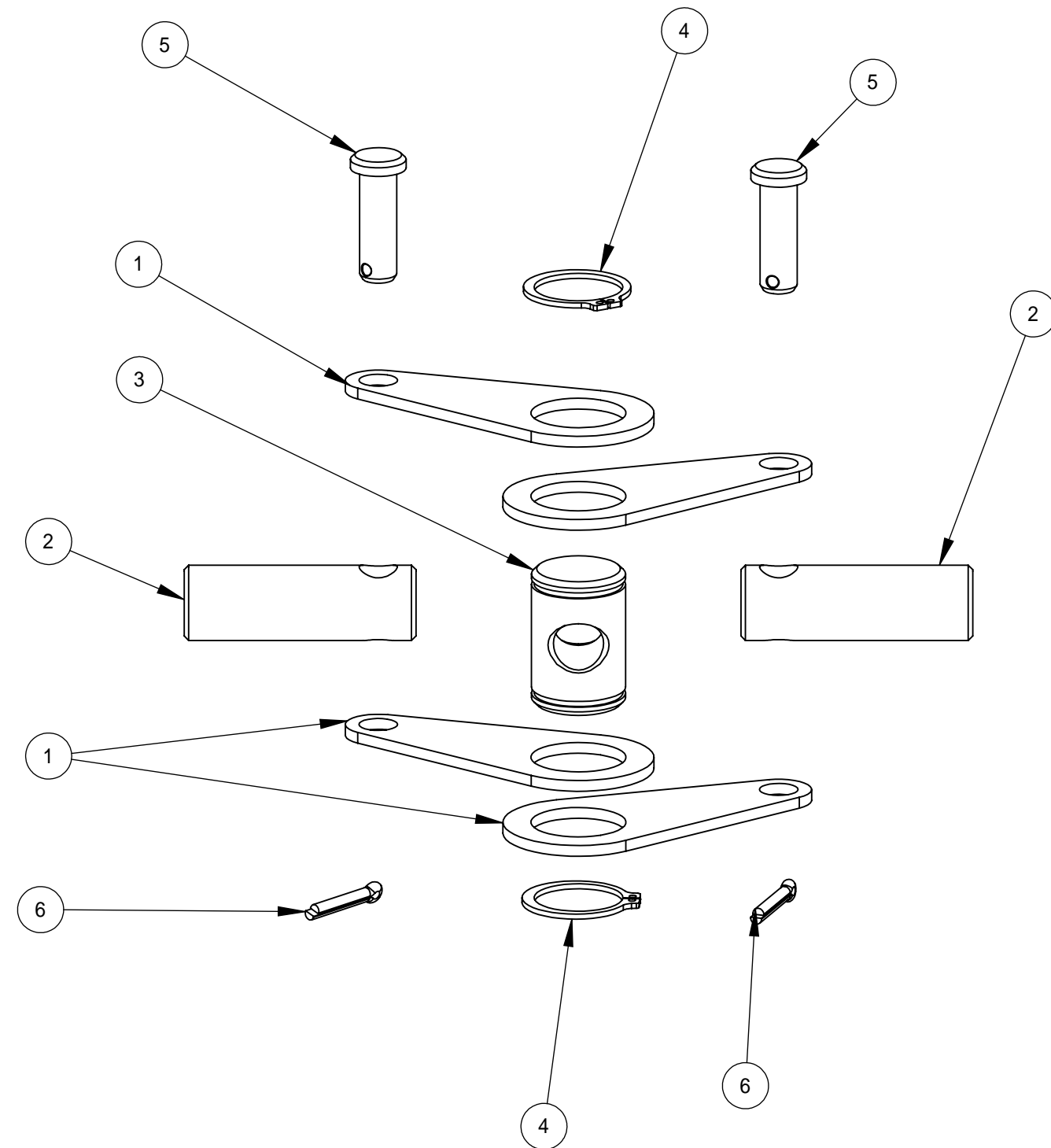
Figure 8-6. Vacuum Shoe and Skid Assembly
6407 Rev. A



Vacuum Shoe and Skid Assembly Parts List

Item	Part Number	Description	Qty
1	000-064-011	Shoe, 4" Vac Head - Weldment	1
2	000-057-048	Gasket, Vacuum Head	1
3	000-107-049-07	Skid, Vented	1
4	000-094-058	Nut, #10-32UNF - Nylock	2

Figure 8-7. Handle Locking Linkage
6390 Rev. A



Handle Locking Linkage Assembly Parts List

Item	Part Number	Description	Qty
1	000-107-097	Link	4
2	000-107-256	Plunger	2
3	000-094-030	Adjusting Nut	1
4	000-139-006	Ring, 5/8" Snap	2
5	000-103-012	Pin, 1/4" X 7/8" - Clevis	2
6	000-103-013	Pin, Cotter	2

International Chem-Dry® PowerHead

Chem-Dry 230 V 50 Hz Rotary Extractor Assembly Parts List (P/N 604-999-212)

Part Number	Description	Qty	Part Number	Description	Qty
000-001-065	Adapter, Edge Tool (Painted)	1	000-068-112	Hose, 1"Vacuum-Gray	3
000-006-011	Base, w/Handle - Coat	1	000-068-127	Hose, 3/16"X 48 1/2 w/ 7/16 JIC Ends	1
000-011-001	Bezel, Threaded for 000-157-134	1	000-076-079	Jet, 95015	5
000-015-006	Bracket, Head Stabilizer	1	000-081-121	Label Set, Harris Research	1
000-015-190	Bracket, Relay Mount	1	000-091-016	Motor,1/2 HP TEFC-22	1
000-015-986	Bracket, Handle -to- Base	1	000-094-019	Nut,1/2-13 Hex	1
000-015-987	Bracket, Linkage Clam	2	000-094-030-07	Nut, Adjusting, Linkage	1
000-033-010	Clamp, Size 32 Hose	2	000-094-036	Nut,1/2" NPT Pipe PI	1
000-033-114	Clamp, Linkage - Modified	1	000-103-012	Pin,1/4 X 7/8" Clevis	2
000-041-014	Cover, Handle Access-Gray	1	000-105-008	Plate, Cast Bass	1
000-041-251	Cover, Gear Box - Coated	1	000-106-001	Plug,1/8" Brass	1
000-041-543	Cover, Linkage Clamp	1	000-106-014	Plug,20 Gear Box Vent	1
000-052-059	Bushing,1/4 M X 1/8	1	000-106-109	Plug, 220 IEC w/Fuse Receptacle	1
000-052-432	Cuff,1 1/2" Gray	1	000-106-124	Plug, Pipe, 1/4", Flush Fitting	1
000-052-506	Nipple,1/4" MPT X 9/16-18 37 Degr. JIC S/S	1	000-107-040	Hub, Vacuum-Stainless	1
000-052-513	Elbow,1/8" F X F S/S	5	000-107-089	S/S Heat Treated Star	1
000-052-515	Nipple,1/8" X 4" S/S	5	000-107-096	Handle Arc	2
000-052-516	Quick Connect, 440 Male	1	000-107-097	Link	4
000-052-521	Nipple,1/8" X 1/4" JIC	1	000-107-103	Trigger Pivot	1
000-052-522	Rotary Union, S/S	1	000-107-256	Plunger, Locking	2
000-052-678	Nipple,1/4" NPT X 4"	1	000-108-014	Shield, Micro Switch	1
000-052-691	Elbow,1/4" Street S/S	1	000-125-089	Tube, Clear 1 1/4"	1
000-056-009	Fuse, 6.3 Amp 5mm X 20	2	000-131-014	Gasket, Roto Shroud	3.2 ft
000-057-026	Gasket,1/2" X 18 1/8"	1.8 ft	000-139-001	Ring, Plastic Vacuum Hub	1
000-057-047	Gasket,20 Felt Hub	1	000-139-006	Ring, 5/8" Snap	2
000-059-001	Gear Box, Complete	1	000-141-004	Axle ,Hi Speed Wheel	1
000-061-004	Handle, Foam Grip - Closed	2	000-141-007	Rod Assembly, Handle Adj. Clamp	1
000-061-030	Handle, Clamp "T" (Raw)	2	000-141-031	Rod, Handle Arc	1
000-061-119	Knob, Push Button	1	000-143-045	Screw, 1/2" Mod	1
000-064-022	Head, Skid Assembly	5	000-143-162	Screw, 5/16 X 1"Strip	5
000-068-041	Hose, Base Out	1	000-143-609	Screw, 5/8-18 X 5/8 Lg.	2

Chem-Dry 230 V 50 Hz Rotary Extractor Assembly Parts List (P/N 604-999-212) (continued)

Part Number	Description	Qty
000-156-031	1/4-20 X 1" S/S	1
000-157-132	Relay, 220 V 30 Amp SPST	1
000-157-133	Switch ,220 V	1
000-157-134	Switch, 220 V Momentary	1
000-167-009-07	Trigger, Left Hand	1
000-167-010-07	Trigger, Right Hand	1
000-169-047	Valve, S/S Solution	1

Part Number	Description	Qty
000-169-215	Valve, Vacuum Breaker	1
000-174-006	Washer, 7/16 Flat	1
000-174-030	Washer, 5/8" I.D. X 7/8"	2
000-177-001	Wheel, 8" Hi Speed	2
000-178-054	Cord, 50 ft w/M-F IEC Ends 220 V	1
604-051-018	Handle, Coated	1

International Chem-Dry® PowerHead

9 - Repair

FELT VACUUM SEAL

The felt vacuum seal plays an important part in the optimum performance of your Chem-Dry PowerHead. 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.
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 SAE 30 weight motor oil (or equivalent).
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.

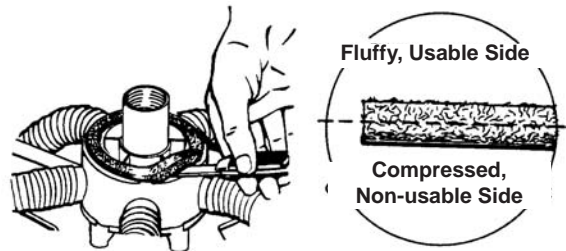


Figure 9-1. Carefully Pry Seal Up and Lift Out

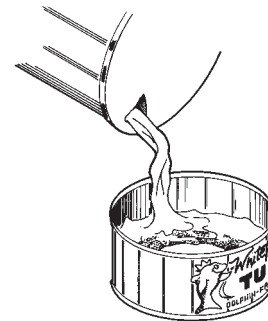


Figure 9-2. Use Can to Hold Oil for Seal

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 Chem-Dry Service Kit).

International Chem-Dry® PowerHead

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.

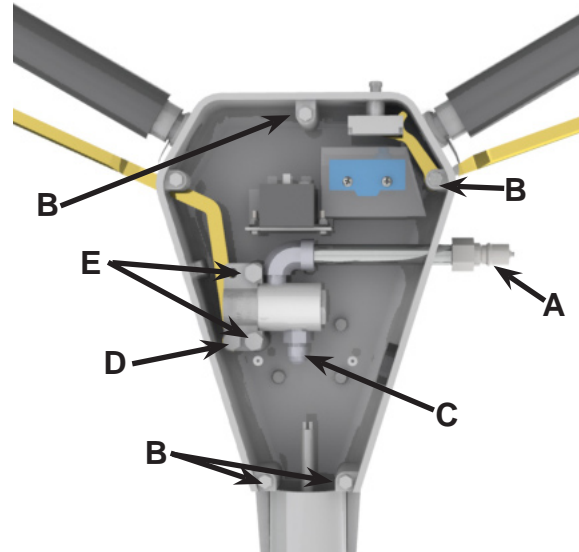


Figure 9-3. Valve Assembly Parts

NOTICE

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

10 - Troubleshooting

1.0 LOW VACUUM FLOW AT THE CLEANING HEADS

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)

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

3.1	Foreign matter in rotary union seal.	Dismantle rotary union. Clean. Re-assemble and install.
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4.0 WATER LEAK AT VALVE

4.1	Ruptured plunger or valve O-ring.	Repair or replace damaged plunger, O-ring, seal. Check for freeze damage.
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5.0 LOSS OF OIL FROM GEAR BOX

5.1	Loose or ruptured oil seal.	Replace damaged oil seal. Refill gear box with oil.
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6.0 NO POWER

6.1	PowerHead wiring or power source.	Have an electrician inspect unit for possible wiring or motor problems.
6.2	Overloaded power source	Locate an unused power source.
6.3	Gear box	Repair or replace gear box

7.0 HEAD WOBBLES DURING OPERATION

7.1	One leg of cleaning head is bent.	Straighten leg
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International Chem-Dry® PowerHead

11 - Limited Warranty Plan

Harris Research, Inc (HRI) warrants PowerHead 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 HRI, nor to assume for HRI any other liability in connection with any HRI 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 Chem-Dry Franchisee (owner) without the written consent of HRI. HRI's warranty shall cease to be in effect.

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

HRI agrees, at its option, to repair at the point of shipment, or to replace without charge, any parts or parts of products of HRI manufacture, which within the specified warranty period shall be proved to HRI satisfaction to have been defective when shipped, provided the Chem-Dry Franchisee (owner) promptly notifies HRI, in writing, of such alleged defect. HRI 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. HRI's liability to the Chem-Dry Franchisee (owner), 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 HRI within 30 days. No warranty liability whatsoever shall attach to HRI unless and until HRI 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 HRI 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 HRI, to be expendable in normal use, including, but not limited to paint, labels and other cosmetic parts or features.

International Chem-Dry® PowerHead

Freezing of any water or chemical-related component will VOID all warranties on water or chemical-related components, internal or external, of this equipment.

Deposits and buildup in the water or chemical systems due to hardness in the water used or chemicals which results in deposits, will VOID all warranties on affected components.

All recommended maintenance must be performed by authorized service personnel.

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

COVERAGE SCHEDULE

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

Fold and Apply Tape to Close



Place
Stamp
Here

Harris Research, Inc.
1530 N 1000 West
Logan, UT 84321

Chem-Dry[®] PowerHead

To activate your warranty protection, we must receive this completed form. Upon receipt, you will be registered on our Owners List enabling you to receive updates, Product Support Bulletins and other important factory communications. This warranty registration is subject to the terms, limitations and conditions of the then current Chem-Dry PowerHead Protection Plan.

If you have questions, call Harris Research at 1- 435 755-0255

Serial No. _____

Purchase Date _____

Franchise Contact Name _____

Franchise Name _____

Franchise No. _____

Street Address _____

City, State, Zip _____

Telephone () _____

Signature _____

When this form is completed, return it by folding it with the self-addressed panel showing.

Harris Research, Inc