



# **Tornado®**

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## **Operation & Maintenance Manual** For Commercial Use Only



### **WET/DRY VACUUM MODEL P15**

### **MODELS 94230 & 94231**

## NOTES

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<b>Tornado<sup>®</sup> Standard Warranty Program *</b>	
<p>Warranties do not cover components subject to normal wear or abuse and misuse, and have other limitations not specified here. For full details , contact your Authorized Tornado Distributor, Service Center, or the Tornado Technical Service Department.</p> <p>Tornado sales and service representatives are not authorized to waive or alter the terms of this warranty, or to increase the obligations of Tornado under the warranty.</p>	<p><b>10 Years:</b>  <i>All plastic tanks and rotationally-molded bodies <sup>1) 5)</sup></i></p>
	<p><b>2 Year:</b>  <i>Parts on all Tornado and Tornado/Karcher cleaning equipment <sup>1) 2) 3) 5)</sup></i></p>
	<p><b>1 Year:</b>  <i>Labor on all Tornado and Tornado/Karcher cleaning equipment <sup>2) 5)</sup></i></p>
	<p><b>1 Year:</b>  <i>Warranty on batteries and chargers, one year pro-rated.</i></p>

\* Effective January 1<sup>st</sup>, 2004. Terms subject to change without notice.

1. Windshear™ Blower-Dryer, Insulation Blowers, T191, T201, CV 30, CV 38, CW 50, CW 100, Pro PAC Vacs, Duo-Upright Carpetkeepers™, and all chargers are warranted for 1 (one) year for both parts and labor.
2. Warranties on all riding sweepers including the ICC1, KM 100/100 R, KMR 1250, and KMR 1700 are 24 months parts/6 months labor OR 1000 hours of operation, whichever comes first. Warranties on the 75/140 & 90/140 are 24 months parts/12 months' labor OR 1,000 hours of operation whichever comes first.
3. All-non wear item parts purchased after warranty expiration are warranted for 90 days.
4. Warranty starts from the date of sale to the consumer or, at Tornado's discretion, 6 months after dealer purchased the unit from Tornado, whichever comes first.

Note: Tornado, The Latest Dirt, Floorkeeper, Carpetkeeper, Carpetrinser, Carpetrinser/Dryer, Headmaster, Taskforce, PAC-VAC, T-Lite, Glazer, Windshear, Max-Vac, CV 30, CV 38, and Trot-Mop are trademarks of Tornado Industries.

## IMPORTANT SAFETY INSTRUCTIONS FOR COMMERCIAL USE

WHEN USING AN ELECTRICAL APPLIANCE, BASIC PRECAUTIONS SHOULD ALWAYS BE FOLLOWED INCLUDING THE FOLLOWING:  
READ ALL INSTRUCTIONS BEFORE USING THIS MACHINE

### WARNING: TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK, OR INJURY:

Do not leave machine unattended when plugged in. Unplug from outlet when not in use and before changing pads or attempting any maintenance or adjustment. If handle switch lever is activated accidentally, high starting torque will cause machine to move and may cause damage or injury.

To avoid electrical shock, Use indoors only. Do not use outdoors and do not expose to rain.

Do not allow to be used as a toy. Close attention is necessary when used by or near children.

Use only as described in this manual. Use only manufacturer's recommended attachments.

Do not use with damaged cord or plug. If machine is not working properly, if it was dropped, damaged, left outdoors, or dropped into water, return it to a service center.

Do not pull or carry by cord, use cord as a handle, close a door on cord, or pull cord around sharp edges or corners. Do not run machine over cord. Keep cord away from heated surfaces. Do not unplug by pulling on cord. To unplug, grasp the plug not the cord. Do not handle plug or machine with wet hands.

Keep hair, loose clothing, fingers, and all parts of body away from openings and moving parts.

Turn off all controls before unplugging.

Connect to a properly grounded outlet only. See Grounding Instructions.

Do not put hands under base - rotating parts could cause injury. Always keep hands feet and loose fitting clothing away from moving parts to prevent possible injuries. Use care to keep electrical supply cable from contacting moving parts, such as floor brushes or pads.

**Risk of explosion:** Floor sanding can result in explosive mixture of fine dust and air. Use this machine only in a well-ventilated area, free from any flame or match. Do not use machine in areas where flammable and/or explosive vapors or dusts are present. To avoid fires do not use with a flammable or combustible liquid to clean a floor.

Make sure voltage and frequency at the wall receptacle correspond with that indicated on nameplate before plugging in machine. A 20-amp circuit is recommended. Right or left switch levers will independently operate the motor.

Never use a device to lock the switch lever in the "ON" position.

Use only a 12 Ga. three-wire extension cable, which have 3-prong grounding type plugs and 3-prong receptacles that accept the plug of the machine.

Do not add weight to this machine - this will upset the balance and may cause motor overload.

Do not hop the brush or pad holder onto the machine.

SAVE THESE INSTRUCTIONS

## GROUNDING INSTRUCTIONS

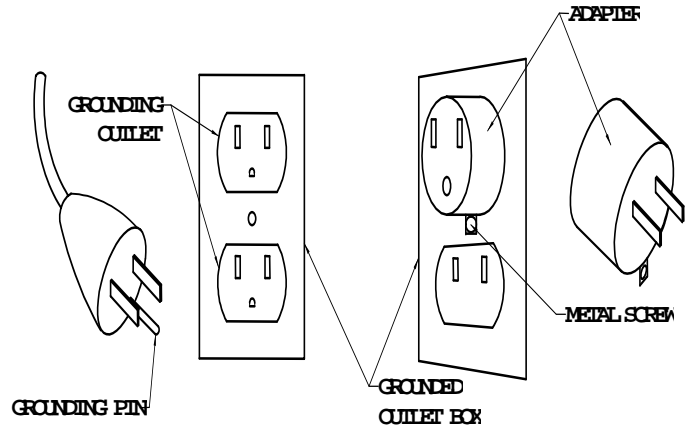
This appliance must be grounded. If it should malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk electric shock. This machine is equipped with a cord having an equipment - grounding conductor and grounding plug. The plug must be inserted into an appropriate outlet that is properly installed and grounded in accordance with all local codes and ordinances.

**WARNING:** Improper connection of the equipment-grounding conductor can result in a risk of electric shock. Check with a qualified electrician or service person if you are in doubt as to whether the outlet is properly grounded. Do not modify the plug provided with the appliance - if it will not fit the outlet, have a proper outlet installed by a qualified electrician.

This appliance is for use on a nominal 120-volt circuit, and has a grounding plug that looks like the plug illustrated in sketch A. A temporary adapter that looks like the adapter illustrated in sketches B and C may be used to connect this plug to a 2-pole receptacle as shown in sketch B if a properly grounded outlet is not available. The temporary adapter should be used only until a qualified electrician can install a properly grounded outlet (sketch A). The green-colored rigid ear, lug, or the like extending from the adapter must be connected to a permanent ground such as a properly

grounded outlet box cover. Whenever the adapter is used, it must be held in place by a metal screw.

**Note: In Canada, the use of a temporary adapter is not permitted by the Canadian Electrical Code.**



SKETCH A  
SKETCH B  
SKETCH C

## WHEN THE MACHINE IS DELIVERED

Check the carton carefully for signs of rough handling. Remove the machine from the carton and look for concealed damage. If the machine is damaged, notify the carrier immediately and request an inspection. Be sure to keep the carton, packing inserts, packing lists, and carrier's receipt until the inspector has verified your claim.

## BEFORE OPERATING THE MACHINE

Read the manual carefully and completely before attempting to operate the unit. This manual has important information for the use and safe operation of the machine. **FAILURE TO ADHERE TO THESE INSTRUCTIONS COULD RESULT IN SERIOUS BODILY INJURY OF PROPERTY DAMAGE.** Keep this manual on file and handy. This machine will assure years of satisfactory service if operated and maintained according to recommendations in the manual. If additional information is needed, please contact your local distributor or write to:

### TORNADO INDUSTRIES

7401 W. LAWRENCE AVE.  
CHICAGO, IL 60706  
708/867-5100  
1-800-VACUUMS  
FAX: 708/867-6968

All information and specifications printed in the manual and parts list are current at the time of printing. However, because of Tornado's policy of continual product improvement, we reserve the right to make changes at any time without notice.

### WARRANTY

*To protect your investment, promptly fill out the required information on the warranty card that comes with the unit and mail it back to Tornado Industries*

**Note: Service repair and warranty work is not normally handled at the factory.**

### WARNING

***The machine was designed for use on floors as per instructions and recommendations written in this manual. Any deviation from its proper use or purpose and the consequential damage that may occur is the sole responsibility of the end user.***

## GENERAL PRECAUTIONS

- You must be trained in the operation of this machine before use. Please read this manual carefully and obtain operation instructions from your safety director or your authorized Tornado distributor.
- Always operate this machine with all of the cable removed from the handle. Failure to do so will upset the precision balance of the machine.
- Do not use the Floor Machine for scarifying or sanding.
- Care should be taken to keep cable away from rotating brush.
- Do not attempt to repair warranted machines. All repairs must be done by a qualified and authorized repair center. Non warranted repairs will be billed back to the owner of the unit.
- Do not use any replacement parts except those specified in the parts list. Unauthorized parts could cause the unit to malfunction and will void the warranty.

**FAILURE TO COMPLY WITH THE ABOVE WARNING INSTRUCTIONS  
WILL VOID THE WARRANTY**

## DRY OPERATION OF VACUUM

The wet/dry vacuums are equipped with bypass motors. Install the cloth filter, place the motor head on the canister and snap down the hold-down clamps.

## WET OPERATION OF VACUUM

The wet/dry vacuums are equipped with a bypass motor so that the working vacuum is separated from the cooling air flow. To pick up water, the dry filters must be removed. The safety float assembly, located in the vacuum head, stops the vacuum motor when water in the tank exceeds the safety level.

## WAND AND ATTACHMENT INSTRUCTIONS

### To assemble the two piece wand:

1. Match the alignment ridges of the upper and lower wand sections.
2. Push the upper wand into the lower wand.

### To assemble tools:

1. Slide the swivel cuff of the tool onto the tapered lower wand.
2. Turn swivel cuff 1/4 turn to tighten.

## DRAINING

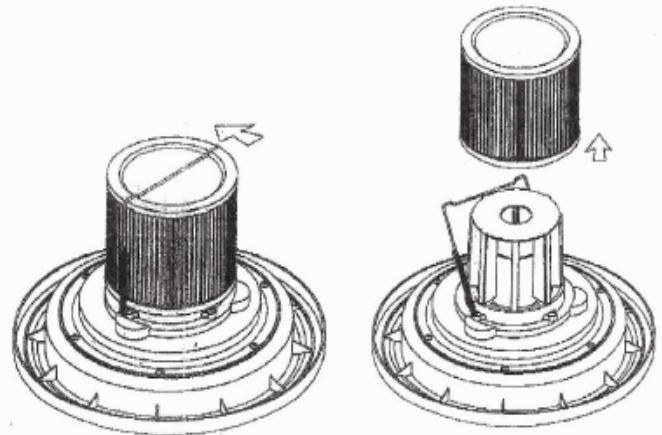
When the tank is full.

1. Release drain hose from hose clamp.
2. Remove plug from hose end to start draining process.
3. When draining is complete, replace hose plug and snap hose back into clips on side of tank.

**NOTE:** When the water level in the tank exceeds the safety level, the safety device will automatically block the inlet, and the motor turning sound will be changed, but power will remain ON. The power must be turned OFF before emptying the tank.

## REMOVE THE PAPER FILTER

The paper filter must be removed for wet recovery. Push the metal ring counterclockwise to release the filter. Remove the paper filter.



## HOSE ATTACHMENT INSTRUCTIONS

The hose and swivel connector are pre-assembled at the factory. To attach the swivel connector to the intake fitting of the canister:

1. Push the grooved cuff straight into the intake fitting.
2. To remove, press the release button on top of the intake fitting while pulling the grooved cuff out.

## MAINTENANCE AND SERVICING

1. To dismantle, unclip both latches and remove top housing and filter with frame.
2. Wash the filter with water and allow it to dry.
3. After washing, remove excess water with a gentle squeegee.
4. Replace the filter and top housing and fasten the latches.

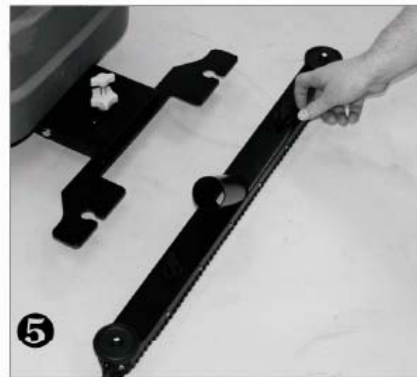
**NOTE:** This cleaner is designed with a powerful suction. Do not be alarmed if the motor noise increases when performing tougher cleaning work.

## Model P15 Parts - Squeegee Assembly

### Installing Instructions - FM100H

#### FRONT MOUNT SQUEEGEE INSTRUCTIONS

1. Remove vacuum head and filters from the vacuum.
2. Install axle mounting plate to bottom of unit. *See fig 1*
3. Attach handle bracket to squeegee bracket.
4. Attach squeegee bracket to the axle bracket. *See fig 2*
5. Attach handle to handle bracket. *See fig 3*
6. Attach handle holder to machine handle. *See fig 4*
7. Attach squeegee to squeegee bracket. *See fig 5*
8. Adjust compensating wheel as necessary.





## TROUBLE SHOOTING GUIDE

### Loss of Suction

#### CAUSE:

- 1) Tank full.
- 2) Dry filter assembly clogged.
- 3) Clogged hose or wand.
- 4) Tank rim is dented.
- 5) Loose or broken fan.
- 6) Motor not working.
- 7) Float not functioning.
- 8) Seal worn.

#### SOLUTION:

- 1) Empty Tank
- 2) Clean cloth filter.
- 3) Remove obstruction.
- 4) Replace tank.
- 5) Contact manufacturer or service center.
- 6) Contact manufacturer or service center.
- 7) Check to see if float moves freely or tank is full.
- 8) Replace seal.

### Motor is not running

#### CAUSE:

- 1) Broken switch.
- 2) Defective power cord.
- 3) Defective motor.

#### SOLUTION:

- 1) Contact manufacturer or service center.
- 2) Contact manufacturer or service center.
- 3) Contact manufacturer or service center.

### Dust blowing from unit when running

#### CAUSE:

- 1) Cloth filter dirty.
- 2) Cloth filter is torn.
- 3) Cloth filter is not installed.

#### SOLUTION:

- 1) Clean cloth filter.
- 2) Replace filter.
- 3) Install cloth filter, when vacuuming very fine dust,

### Water blowing from unit when running

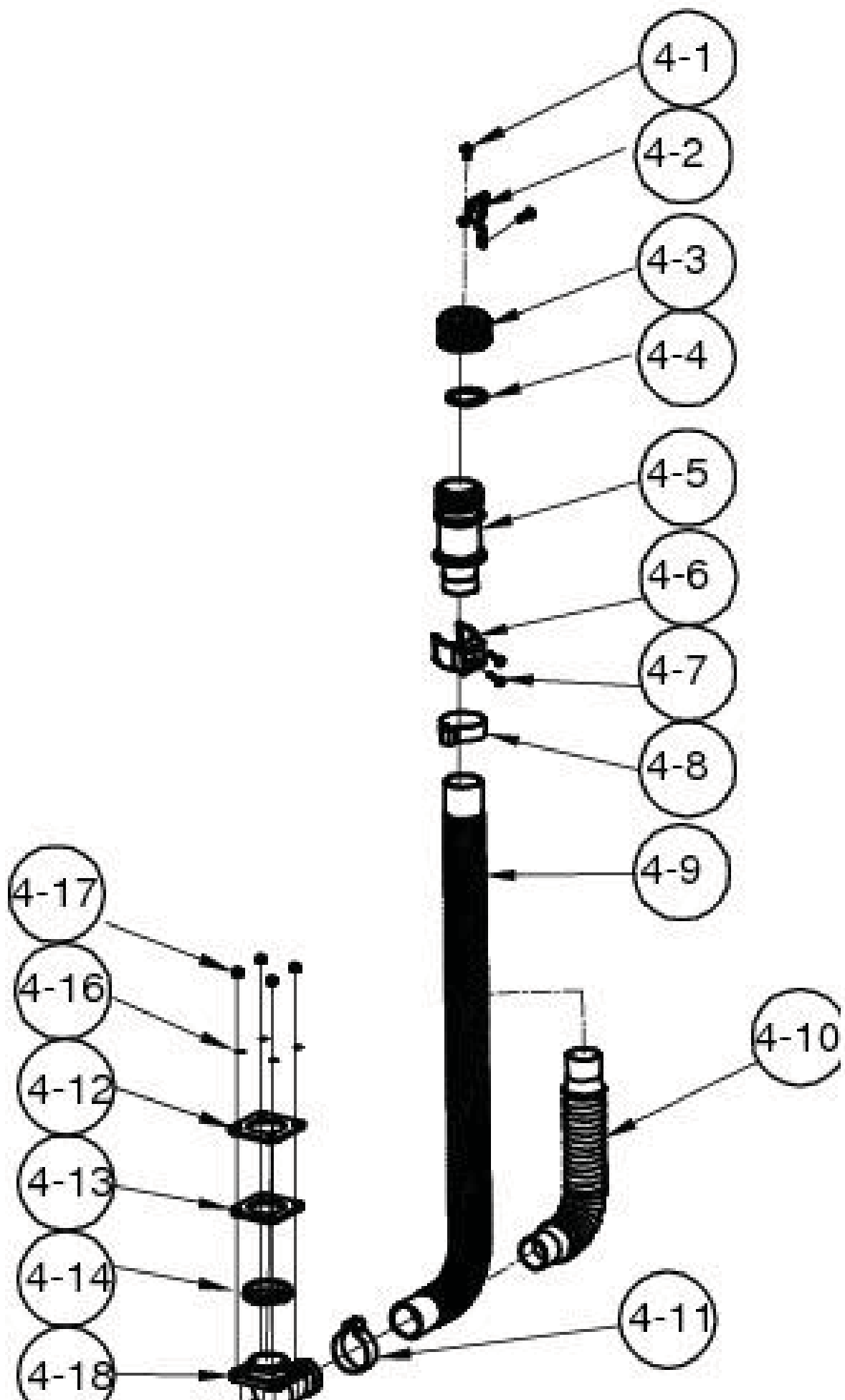
#### CAUSE:

- 1) Tank is full of liquid.
- 2) Sudsy or foamy liquid is being picked up.

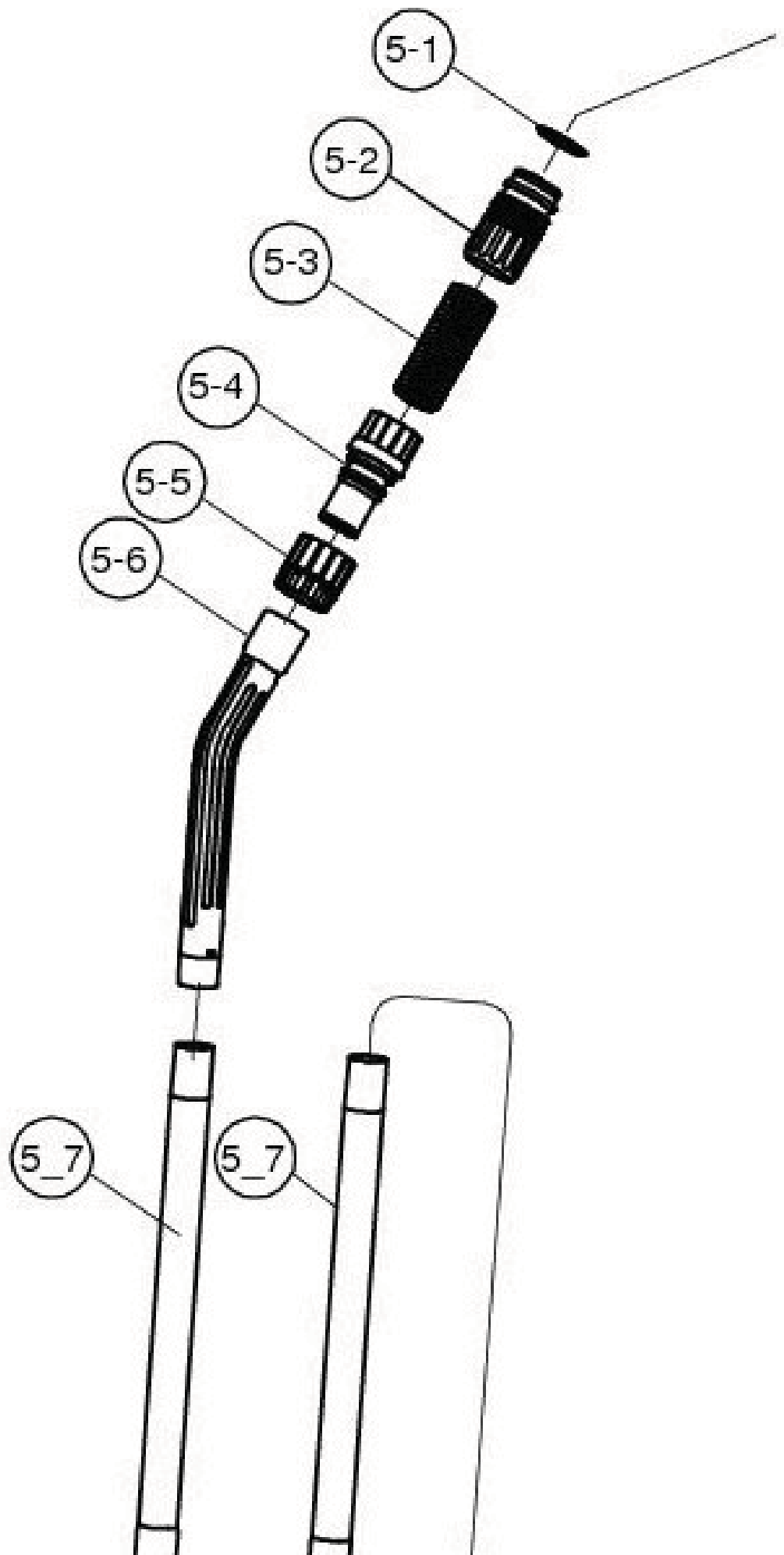
#### SOLUTION:

- 1) Empty tank.
- 2) Add defoamer to tank.



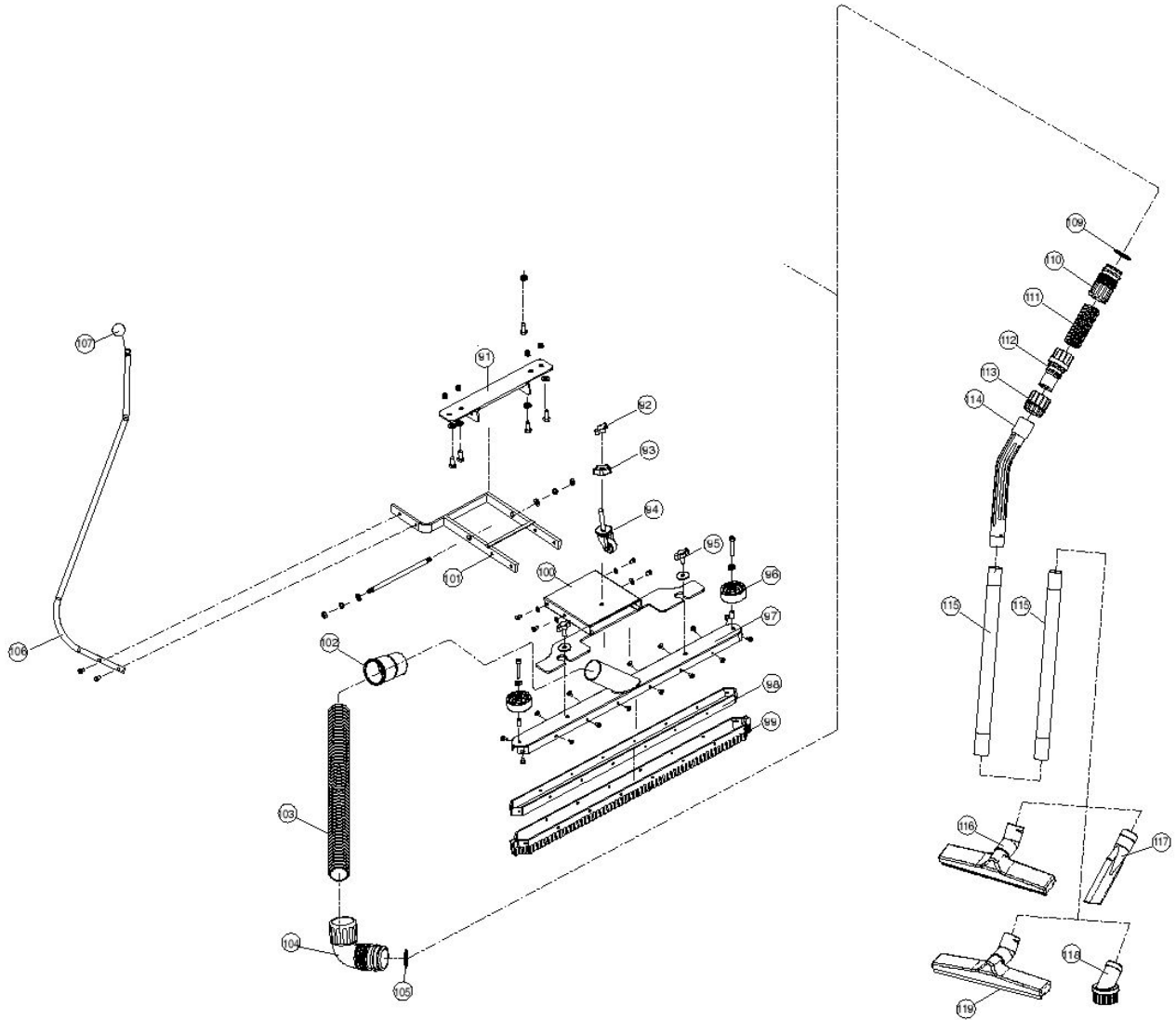


No.	Part No.	Qty.	Description
1	3252DS-03A	2	SCREW M3.5 *8
2	3527BJ-16	1	CHAIN
3	WD236	1	CAPACITOR
4	3527GP-08	1	Gasket
5	WD237	1	CONNECTORS
6	WD146	1	HOOK
7	3238DS-10	1	Screw M4x12
8	WD190	1	CLAMP
9	WD143	1	HOSE
10	WD240	1	PROTECTOR
11	WD241	1	CLAMP-2
12	WD242	1	SEAL
13	WD188	1	TOP SEAL
14	WD243	1	OUTER SEAL
15	3527DS-11	4	SCREW M4 X 26
16	3527DW-02	4	WASHER
17	3238DN-01	4	Nut M4
18	WD141	1	BEND CONNECTOR
19	3527BJ-21	1	SILICON



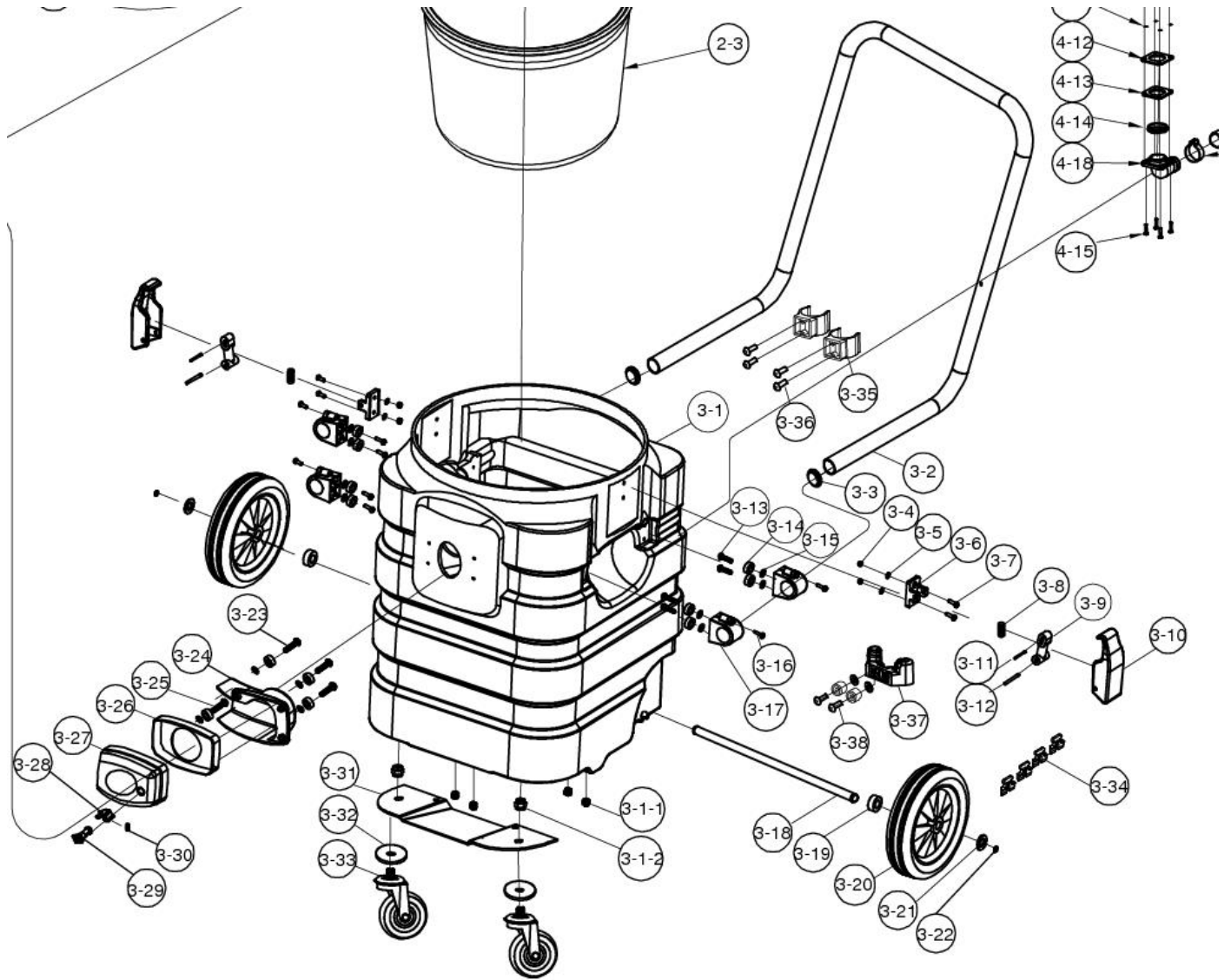
No.	Part No.	Qty.	Description
1	WD23	1	CONNECTOR GASKET PF53 PF55
2	WD24	1	CONNECTOR PF53 PF55 PF57 PF54
3	WD25	1	HOSE ASSY Consist of WD191, WD24, WD26, WD27, and WD28
4	WD26	1	CONNECTOR PF53 PF55 PF57 PF54
5	WD27	1	WAND HOLDER PF53 PF55 PF57
6	WD28	1	BEND CONNECTOR PF53 PF55 PF57
7	WD29	2	WAND STAINLESS STEEL
8	WD32	1	CREVICE TOOL PF53 PF55 PF57
9	WD33	1	DUST BRUSH PF53 PF55 PF57 PF54
10	WD112	1	BRUSH NOZZLE ASSEMBLY
11	WD30A	1	SQUEEGEE NOZZLE ASSEMBLY

Tornado [Aug. 20, 2012]/Year 2000-Current: Schematics, Accessories, Brochures, Replacement & Optional Items/Commercial Tank Vacuums/P15 Wet/Dry Vac/94230 Wet/Dry Vac P15 (115V)/Squeegee Assembly (FM100H)



No.	Part No.	Qty.	Description
91	WD168	1	U-SHAFT
92	WD169	1	Thumb Wheel
93	WD170	1	FIXED NUT
94	WD171	1	Squeegee Wheel
95	WD172	1	Wing Nut
96	FM2	1	Squeegee Wheel
97	WD174	1	Squeegee Body
98	WD175	1	Retainer Strip
99	WD176	1	BLADE
	FM1		Squeegee Blade Set
100	WD177	1	Mounting Plate
101	WD179	1	PEDAL BRACKET
102	WD180	1	CONNECTOR
103	WD181	1	HOSE
104	WD182	1	BEND CONNECTOR
105	WD183	1	SEAL
106	WD184	1	ADJUSTER LEVER
107	WD186	1	ADJUSTER LEVER KNOB
109	WD191	1	Gasket
110	WD24	1	CONNECTOR PF53 PF55 PF57 PF54
111	WD25	1	HOSE ASSY Consist of WD191, WD24, WD26, WD27, and WD28
112	WD26	1	CONNECTOR PF53 PF55 PF57 PF54
113	WD27	1	WAND HOLDER PF53 PF55 PF57
114	WD28	1	BEND CONNECTOR PF53 PF55 PF57
115	WD29	1	WAND STAINLESS STEEL
116	WD112	1	BRUSH NOZZLE ASSEMBLY
117	WD32	1	CREVICE TOOL PF53 PF55 PF57
118	WD33	1	DUST BRUSH PF53 PF55 PF57 PF54
119	WD30A	1	SQUEEGEE NOZZLE ASSEMBLY
120	WD157	1	DRAIN HOSE ASSEMBLY
121	FM100H	1	Front Mount Squeegee Assembly

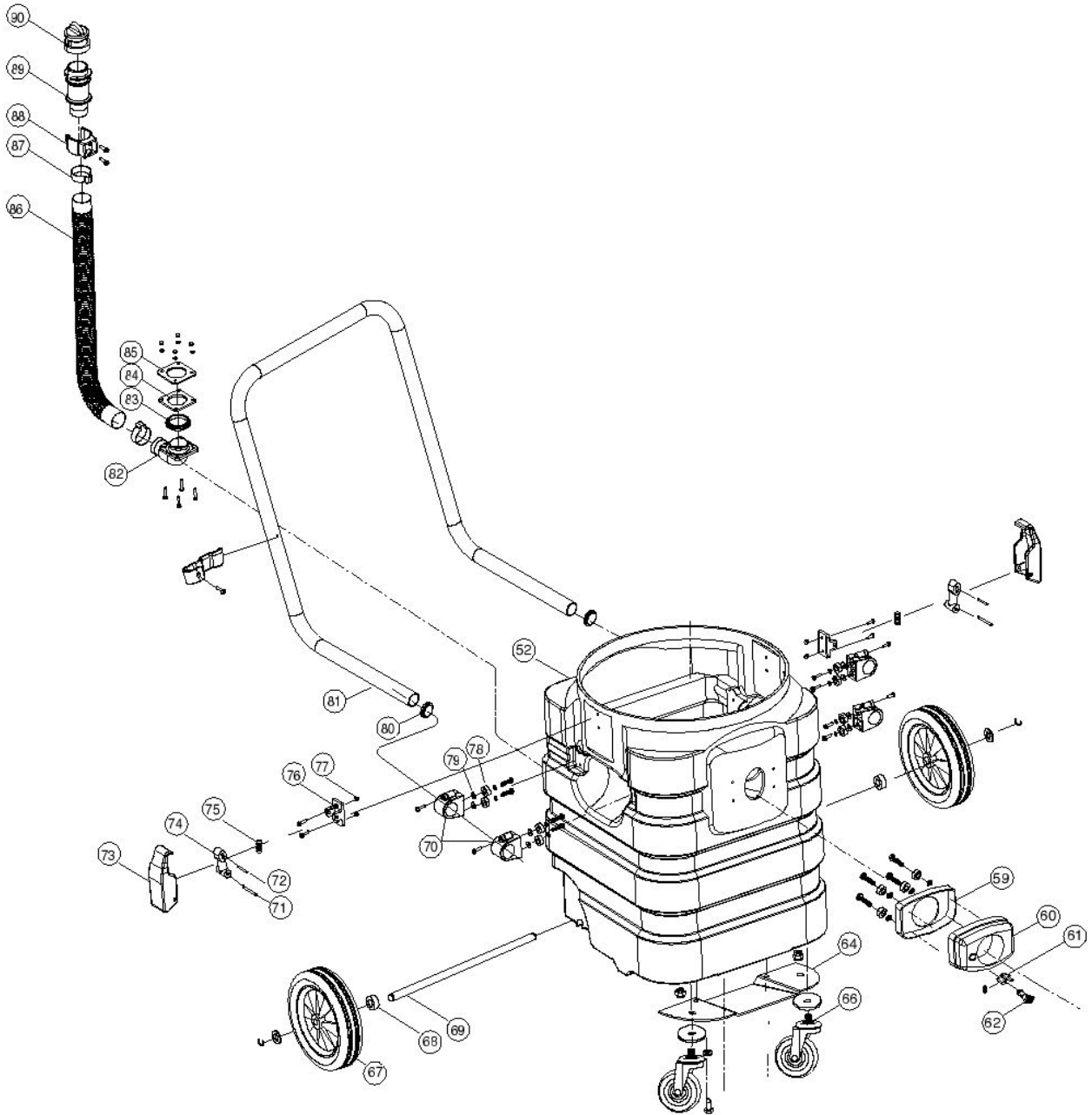
Tornado [Aug. 20, 2012]/Year 2000-Current: Schematics, Accessories, Brochures, Replacement & Optional Items/Commercial Tank Vacuums/P15 Wet/Dry Vac/94230 Wet/Dry Vac P15 (115V)/Tank Assembly Part 1





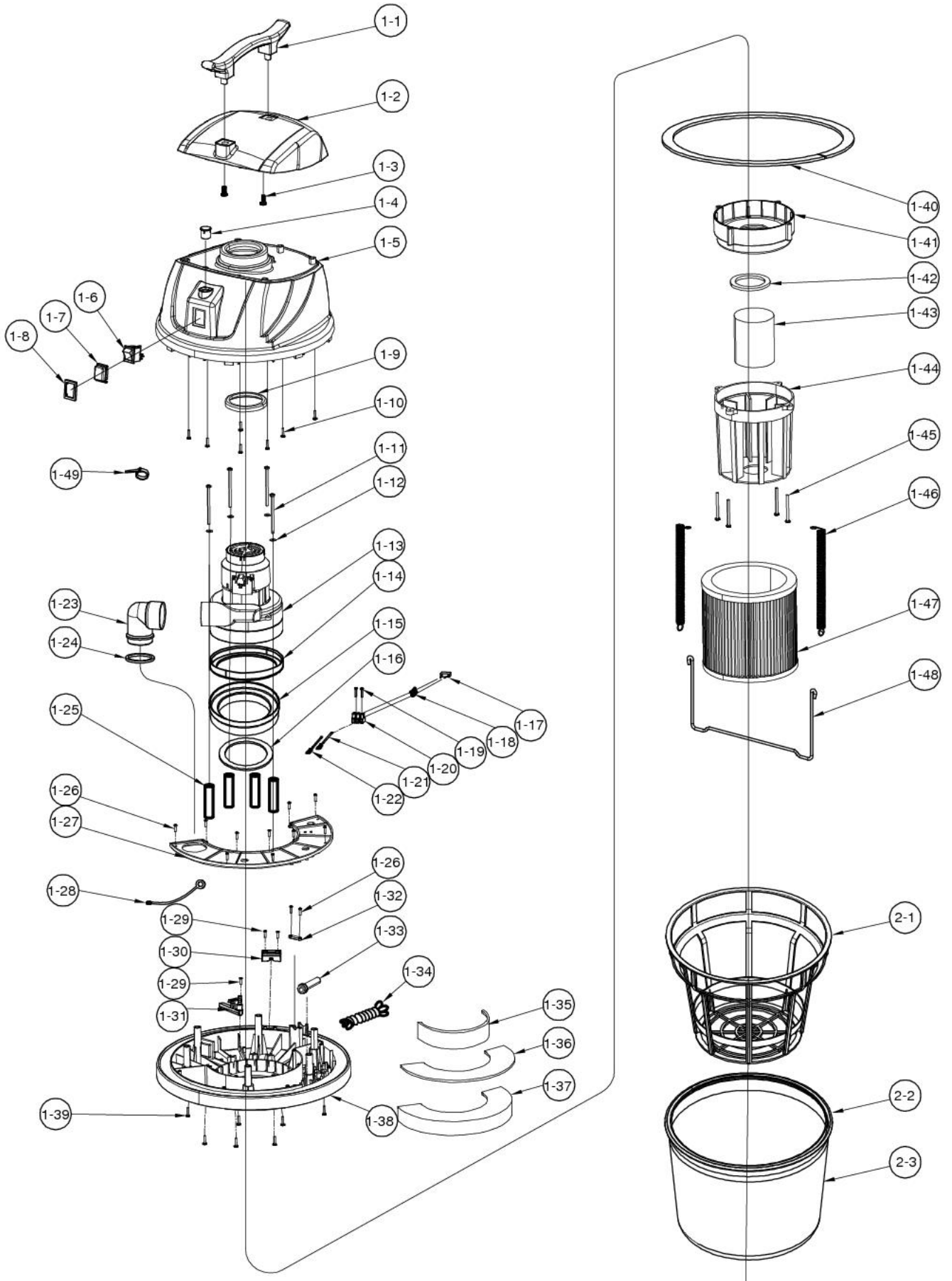
No.	Part No.	Qty.	Description
1	3527AA-01	1	TANK
2	3527DN-08	4	NUT
3	3527DN-07	2	M10-NUT
4	3527UU-01	1	HANDLE
5	3527AA-02	2	BLOCKER
6	WD44	4	HEX NUT
7	3238DW-02	4	Washer M4 x8 x .7
8	3238AA-13B_19	2	CLIP BASE
9	3527DS-04	4	SCREW
10	3238DH-02A	2	Spring
11	3238AA-12B_19	2	CLIP HOLDER
12	WD43	2	CLIP
13	WD729	2	PIN DIA 3.9 25.5 L
14	3238LS-03	2	Pin M3.9 x 40
15	3238DS-07	8	SCREW M4
16	WD223	14	HOLDER
17	3238GP-02	14	Washer
18	3285DS-05	4	Screw M4 x 16
19	3238AA-08	4	HOLDER
20	3527LS-01	1	PIN DIA 12.7
21	3239AA-05	2	Bushing
22	3527BJ-02M	2	REAR WHEEL
23	3238DW-01	8	Washer
24	3238DWR-01	2	C-Ring
25	3527DS-10	3	Screw M5 x 30
26	3239AA-27	1	Deflector
27	3238DS-06	1	Screw M5 x 25
28	3238GP-01_19	1	WASHER
29	3238AA-14	1	Suction Coupler
30	3238AA-15_08	1	HOLDER OF BUTTON
31	3238AA-16_08	1	BUTTON
32	3238DH-01	1	Spring
33	3527PS-08	1	FRAME
34	3527DW-03	2	WASHER
35	3527BJ-01M	2	FRONT CASTER
36	3239AA-18	4	Fixer
37	3527AA-07	2	HOOK
38	3238DS-10	4	Screw M4x12
39	3537AA-02	1	HOLDER
40	3238DS-08	2	SCREW

Tornado [Aug. 20, 2012]/Year 2000-Current: Schematics, Accessories, Brochures, Replacement & Optional Items/Commercial Tank Vacuums/P15 Wet/Dry Vac/94230 Wet/Dry Vac P15 (115V)/Tank Assembly Part 2



No.	Part No.	Qty.	Description
52	WD120	1	TANK
59	WD50	1	RUBBER WASHER
60	WD60	1	LOCK BUTTON
61	WD86	1	BUTTON BASE
62	WD46	1	BUTTON
64	WD167	1	WHEEL MOUNT BRACKET
66	WD123M	1	FRONT WHEEL
67	WD124M	1	REAR WHEEL COVER
68	WD136	1	WHEEL COVER
69	WD125	1	AXEL
70	WD121	1	HOLDER
71	WD131	1	CLIP PIN
72	WD129	1	CLIP PIN
73	WD43	1	CLIP
74	WD127	1	CLAMP HOLDER
75	WD52	1	SPRING
76	WD128	1	CLIP BASE
77	WD44	1	HEX NUT
78	WD202	1	WASHER
79	WD77	1	RUBBER WASHER
80	WD133	1	COVER
81	WD132	1	HANDLE
82	WD141	1	BEND CONNECTOR
83	WD187	1	BOTTOM SEAL
84	WD188	1	TOP SEAL
85	WD189	1	FIXER PLATE
86	WD143	1	HOSE
87	WD190	1	CLAMP
88	WD146	1	HOOK
89	WD144	1	CONNECTOR B
90	WD145	1	TOP COVER
91	WD192	1	HANDLE HOOK

Tornado [Aug. 20, 2012]/Year 2000-Current: Schematics, Accessories, Brochures, Replacement & Optional Items/Commercial Tank Vacuums/P15 Wet/Dry Vac/94230 Wet/Dry Vac P15 (115V)/Top Head And Filter Assembly



No.	Part No.	Qty.	Description
1	33447	1	TOP COVER W/ HANDLE P15 S15
2	33448	1	TOP HOUSING W/ COVER P15 S15
3	3215BS-01A	1	POWER SW
4	3101BJ-15B	1	PROTECTOR
5	3101BJ-15A	1	PROTECTOR PP
6	3550GP-02	1	Seal 3
7	3539DS-02	3	M5*85
8	3216DW-01	4	WASHER OD12 ID 5.6.7T
9	5116W	1	2-STAGE MOTOR
	5136W		Motor 120V
10	3200GP-02	1	Gasket
11	3536AA-01	1	MOTOR HOLDER
12	3536KF-01	1	GASKET
13	3215BE-01	1	CAPACITOR
14	KK-01	2	SLEEVE
15	3285DS-04	2	SCREW M3 5*20
16	59006BE-01	3	TERMINAL BLOCK
17	WD207	1	TERMINAL BLOCK
18	3539DE-04	1	WIRE
19	3539AA-04	1	BEND CONNECTOR
20	3539KF-02	1	SEAL-2
21	3539LA-01	3	HOLDER
22	3208DS-07	12	Screw M3.5x12
23	3539AA-10	1	PLATE
24	3539DE-09	1	EARTH
25	3200DS-02	3	Screw M3x8
26	WD166	1	PLATE B
27	3539AA-12	1	HOLDER
28	WD17	1	WIRE PLATE
29	WD34	1	CORD PROTECTOR
30	3539DEA-01-1	1	POWER CORD
31	3539KF-04	1	SPONGE-3
32	3539KF-03	1	SPONGE-2
33	3539KF-01	1	SPONGE-1
34	3539AA-01	1	MOTOR BASE
35	3208DS-01	1	Screw M4 x 18
36	WD165	1	GASKET
37	3539AA-05	1	SUPPORTER
38	WD53	1	GASKET
39	WD9	1	FLOAT
40	WD8	1	FRAME
41	3539DS-01	1	SCREW M5*55L
42	3238DH-03	1	SPRING
43	WD253	1	WASHABLE FILTER
	WD36		FILTER CARTRIDGE
44	3238PS-01	1	HOOK
45	3238AA-22A	1	FRAME
46	3239UU-05	1	GASKET
	WD3		FILTER ASSY PF53 PF54
47	3208UU-03	1	CLOTH FILTER
48	5101BJ-01	2	Tie M100