




TORNADO TS050-W13-U Vortex 13 Multiwash User Manual

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TORNADO TS050-W13-U Vortex 13 Multiwash

Product Information

- **Product Name:** VORTEX 13 MULTIWASH
- **Model No.:** TS050-W13-U
- **Product Type:** Commercial Use Only

Product Usage Instructions

Getting Started

1. Upon receipt, inspect the outer box for exterior damage.
2. Unpack all internal parts and ensure no hidden damage is found.

Warranty

To activate the product warranty within 30 days of purchase, visit <https://tornadovac.com/services/warranty-registration-form.aspx>.

For warranty information, visit www.tornadovac.com.

Important Safety Instructions

- Prior to operating the unit, read and understand the owner's manual, paying special attention to warning labels.
- There is no owner-serviceable parts inside this machine.
- Removal of screws and accessing internal components will void all warranty claims.

Grounding Instructions

This appliance must be grounded to reduce the risk of electric shock. Follow these instructions:

1. This machine is equipped with a cord having an equipment grounding conductor and grounding plug.
2. The plug must be inserted into an appropriate outlet that is properly installed and grounded according to local codes and ordinances.
3. Improper connection of the equipment grounding conductor can result in a risk of electric shock. If in doubt, consult a qualified electrician or service person.
4. Do not modify the plug provided with the appliance. If the plug does not fit the outlet, have the proper outlet installed by a qualified electrician.
5. Do not remove the grounding pin for any reason.

Cleaning Agents

- Refer to the technical specifications provided in the user manual for recommended cleaning agents suitable for use with the VORTEX 13 MULTIWASH.

Technical Specifications

- Refer to the technical specifications section provided in the user manual for detailed information on the VORTEX 13 MULTIWASH.

Brush Selection

- Refer to the brush selection section provided in the user manual for guidance on selecting the appropriate brush for specific cleaning tasks.

Operating Instructions

1. Key Features
2. Assembly
3. Controls
4. Operation
5. Cleaning
6. Transport and Storage
7. Maintenance
8. Accessories
9. Fault Diagnosis

Please refer to the respective sections in the user manual (pages 4-25) for detailed instructions on each of the above operating instructions.

INTRODUCTION

- Your new Tornado unit is a high-quality, precision-made product. All parts used in the manufacturing of this unit have passed rigid quality control standards prior to assembly. Please safeguard the original receipt/invoice given at the time of purchase. If you experience any problems with your unit during the warranty period, the original receipt/invoice will act as proof of purchase.
- Upon receipt, inspect the outer box for exterior damage. Unpack all internal parts, and ensure no hidden damage is found.
- Each unit is tested and thoroughly inspected prior to shipping. If damage is discovered, immediately notify the transportation company that delivered your machine and request an inspection. As a manufacturer, we are unable to act upon any claim for concealed damage and you must originate the claim. Be sure to keep the carton, packing inserts, and carrier's receipt until the inspector has verified your claim.

Protect the environment

- Please dispose of packaging materials in an environmentally safe way according to local waste disposal regulations.
- Always remember to recycle.

Warranty

- Within 30 days of purchase, to activate the product warranty, go to:
<https://tornadovac.com/services/warranty-registration-form.aspx> For warranty information go to www.tornadovac.com.

Warning Labels

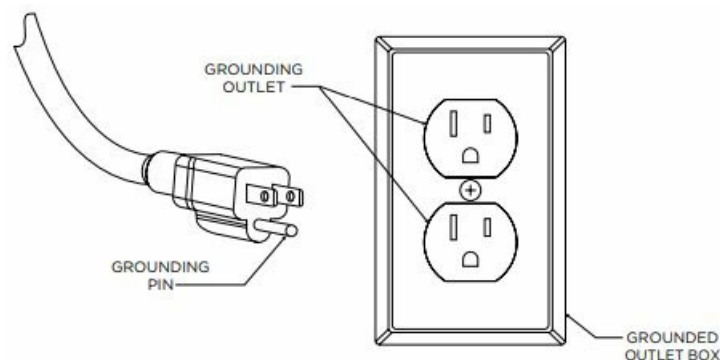
- Prior to operating the unit, read and understand completely this owner's manual paying special attention to warning labels. These labels indicate a potentially hazardous situation that could result in death or serious injury if not avoided. Use only as described in this manual.

Important

- There are no owner-serviceable parts inside this machine. Removal of screws and accessing internal components will void all warranty claims.

GROUNDING INSTRUCTIONS

- This appliance must be grounded. If it should electrically malfunction, grounding provides a path of least resistance for the current to reduce the risk of 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.
- 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 the plug will not fit the outlet, have the proper outlet installed by a qualified electrician. **DO NOT REMOVE THE GROUNDING PIN FOR ANY REASON.**
- This appliance is for use on a nominal 115-volt circuit and has a grounding plug that appears as shown below.



IMPORTANT SAFETY INSTRUCTIONS

Read and understand this owner's manual and all labels on the unit before operating. Safety is a combination of common sense, staying alert, and knowing how your unit works. To reduce the risk of personal injury or damage to your unit use only as indicated in this manual.

FOR COMMERCIAL USE ONLY

To reduce the risk of fire, electrical shock, or injury, the instructions below must be read and understood completely prior to machine operation

IMPORTANT: The manufacturer cannot accept responsibility for damage caused when the appliance is not used according to the instructions, or for uses other than those for which it was intended.

WARNING:

- This machine must only be used for the manufacturer's approved application as described in this manual.
- The machine must be unpacked and assembled in accordance with these instructions before connecting to the electrical supply.
- Only genuine accessories and spare parts provided with the machine or those approved by the manufacturer

should be used. The use of other accessories may impair the safety of the machine. All repairs must be performed by a qualified service agent.

- DO NOT modify the machine from its original design.
- Operators must be fully trained in the use of the machine in accordance with these instructions and be able to perform regular user maintenance as outlined in this manual.
- Operators should be physically capable to maneuver, transport and operate the machine.
- Operators should be able to recognize unusual operation of the machine and report any problems.
- This machine is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge unless they have been given instruction concerning use of the machine and are under supervision by a person responsible for their safety.
- Keep children and unauthorized persons away from the machine when in use.
- DO NOT use the machine as a toy.
- DO NOT use with a damaged cord or plug. If it has been damaged, left outdoors or dropped in water, return it to a service center for inspection and/or repair.
- DO NOT use where hazardous dust is present.
- DO NOT use in an explosive environment.
- DO NOT pick up or use near flammable or combustible fluids, hazardous dusts or vapors.
- **CAUTION** –If it is suspected that there is hazardous dust or flammable/corrosive material, stop cleaning the area immediately and consult your supervisor.
- DO NOT use to clean up any burning or lighted materials such as cigarettes, matches, ashes, or other combustible objects.
- Only use the machine on firm, level surfaces. DO NOT use the machine on gradient or slope of more than 2%.

SAVE THESE INSTRUCTIONS

- **CAUTION** –This machine is for dry, indoor use only and should not be used or stored outdoors or in wet conditions.
- Protect from rain.
- Take care when using this machine near the top of stairs to avoid loss of balance.
- DO NOT cover the machine when in use.
- DO NOT run the machine dry as this could damage the floor surface and/or the machine itself.
- DO NOT leave the machine running unattended.
- Keep hair, loose clothing, hands, feet, and all other parts of the body away from openings and moving parts. Do not put hands under base as rotating parts can cause injury.
- DO NOT put any object into openings. DO NOT use with any opening blocked. Keep free of dust, debris and anything that may reduce airflow.
- DO NOT use volatile or combustible solvents (e.g., diesel, petrol, PA, trichloromethane) nor any corrosive, toxic, or highly irritant substance to wash floors, even if diluted. In the event of accidental contact with any such substances (e.g., due to spills) follow the decontamination procedures in force at the user site. If in any doubt about the condition of the machine, contact Tornado or the dealer/agent who supplied the machine.
- DO NOT leave the machine unattended when plugged in. Unplug from outlet when not in use and before changing brushes or attempting any maintenance or adjustment.
- DO NOT fill the machine with water hotter than 104°F (40°C).

- When used on escalators, ensure the machine is positioned at the bottom of the escalator with the escalator moving towards the operator.
- DO NOT pull or carry by cord, use cord as a handle, close a door on cord, or pull cord around sharp edges on 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. Turn off all controls before unplugging.
- Connect only to a properly grounded outlet. See grounding instructions.
- Use care to keep electrical supply cable from contacting moving parts such as floor brushes.
- Make sure voltage and frequency at the wall receptacle correspond with that indicated on nameplate before plugging in machine.
- The machine must be kept clean and in good condition with regular inspections of the power cord and plug for signs of any damage. If any parts are damaged, they shall only be replaced by an approved part by the manufacturer, its service agent or a similar qualified person in order to avoid a hazard.
- Only replace the power cord with original OEM equipment.

CLEANING AGENTS

- When using cleaning and care agents, the manufacturer's danger warnings must be followed, and proper PPE must be worn per manufacturer's instruction. Only use low-foaming, non-combustible cleaning agents which DO NOT contain generally health-hazardous substances.
- Please ensure that after each use, any chemical residue is rinsed out with clean water.
- The manufacturer cannot accept responsibility for damage caused when the appliance is not used in accordance with the instructions provided or for uses other than those for which it was intended.

OPERATOR GUIDELINES

- Let the machine do the work. Grip the handle as lightly as possible.
- Wear suitable footwear to avoid slipping.
- Wear suitable clothing to keep dry.
- Do not smoke when using the machine.
- Do not use excessively foaming or highly corrosive cleaning solutions. If operating on a flooded floor, ensure that water depth does not exceed 6mm (1/4 inch).
- This machine is heavy. Do not attempt to lift the machine without assistance. Incorrect lifting techniques may result in personal injury.

TECHNICAL SPECIFICATIONS

Specification	Value
Voltage	115
Hertz	60
Cleaning Width	13 in / 340 mm
Handle Height	44 in / 1110 mm
Width	18 in / 450 mm
Length	15 in / 390 mm
Motor Power	950 Watts
Amperage	8.2
Brush Speed	670 RPM
Solution Tank Capacity	1 Gallon / 4 Liters
Cleaning Capacity	3767 ft ² /hr. / 350 m ² /hr.
Noise Level	69 db(A)

- Handle vibration does not exceed 2.5 m/s² when operating on a smooth, hard surface.
- Noise levels measured at a distance of 3.28 feet (1 meter) from machine and 5.25 feet (1.6 meters) above floor when washing a hard floor.
- Above values are approximate. Since the company's policy is to continuously improve the product, there could be changes without prior notice.
- Cleaning Capacity above is theoretical as there are potentially many variances in machine operation.

BRUSH SELECTION

Floor Type	First Time Cleaning	Maintenance Cleaning
Grouted Tile, Ceramic, Mosaic, Wood, Sports Floors, Rubber, Vinyl Tile	Standard	Soft
Short Pile Carpet	Carpet	Carpet
Marble, Granite, Slate	Soft	Soft
Smooth Concrete	Hard	Standard
Others	To suit individual floor conditions	

Brush Type	Part Number
Standard	93120
Soft	93121
Hard	93122
Escalator	33859
Side	93049

KEY FEATURES



Item	Description
1	Handle
2	Solution Control Button
3	Power Cord
4	Solution Tank
5	Handle Bracket
6	Solution Hose
7	Front Brush
8	Rear Brush

Item	Description
9	Handle Release Pedal
10	Dirty Water Tank
11	Dirty Water Tank Lid
12	Pump Control Cable Routing Location
13	Power Cord Retainer
14	Power Cord Wrap Hooks
15	Cable

ASSEMBLY

1. Insert the handle assembly into the handle bracket. (Fig.1)



Fig. 1



Fig. 2

2. Using the knob, star washer and flat washer, fasten the handle to the handle bracket. (Fig. 2)
3. Ensure the handle solution tank pin is toward the front of the unit and the cord wrap hooks are towards the rear. (Fig. 3)
4. Feed the pump control cable through the (5) locations shown in the handle bracket and handle. (Fig. 4)



Fig. 3



Fig. 4

5. Plug the end of the pump control cable into the socket in the handle assembly. This plug is not polarity-sensitive and will fit into the handle either way. Ensure there is enough slack at the bottom of the cable so that the pump housing lid is not raised when the handle is moved to the working position. (Fig. 5)



Fig. 5

6. Feed the loop of the power cord through the slot in the power cord retainer. (Fig. 6)



Fig. 6

7. Hook the loop over the lip of the retainer and pull any slack back through the slot. Wrap cord around 4 cord hooks on the back of the machine. (Fig. 7)



Fig. 7

8. Place the lip of the solution tank on the handle bracket and rotate it up so that the solution tank pin engages the solution tank pin retainer. (Fig. 8)



Fig. 8



Fig. 9

9. Pressing the white tab on the connector will release the elbow connector from the tank. (Fig. 9)
10. Attach the hose barb end of the black elbow connector to the hose coming from the pump housing. Attach the other end of the elbow to the tank by pushing the elbow into the connection until it “clicks” and locks in. (Fig. 10)



Fig. 10

11. Attach one end of the power cable to the unit and the other to a wall outlet. (Fig. 11 & 12)



Fig. 11

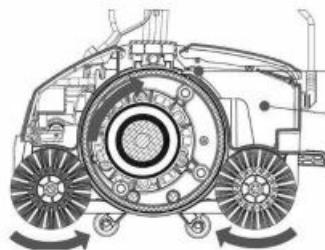


Fig. 12

CONTROLS

How it works:

- Cleaning liquid in the solution tank is sprayed onto the floor.
- The counter-rotating brushes scrub the floor and throw the dirty water on the conveyor drum.
- The front brush does most of the scrubbing and drying.
- The rear brush completes the scrubbing and collects the remaining water from the floor.
- The blade fitted to the recovery tank wipes the drum and collects the dirty water.



BRUSH CONTROLS

- The handle must be in the upright and locked position to change the transport/work lever.
- To put a machine in TRANSPORT MODE, move the red lever to the DOWN position. In this mode, the transport wheels contact the floor when the handle is moved to the working position.
- **Note:** The machine will NOT turn on when in this mode.



Brush Controls:

- Move the slider all the way UP to put the machine in WORKING MODE. In this mode, the brushes contact the floor when the handle is moved to the working position.



- Keeping slider in the UP, working position while transporting the machine WILL damage the brushes.
- Always transport in TRANSPORT MODE.

Solution Control:

- By pushing the red solution button, the cleaning solution is sprayed onto the floor from the front of the machine. The solution stops once the solution control button is released.

Brush Contact Control:

- Brush contact control is adjustable in 4 steps in order to compensate for brush wear and control the scrubbing effect. Contact is MINIMUM when the knob is fully down and MAXIMUM when fully raised. If the machine does not move when the handle is lowered, slide the brush contact control slider up one step.

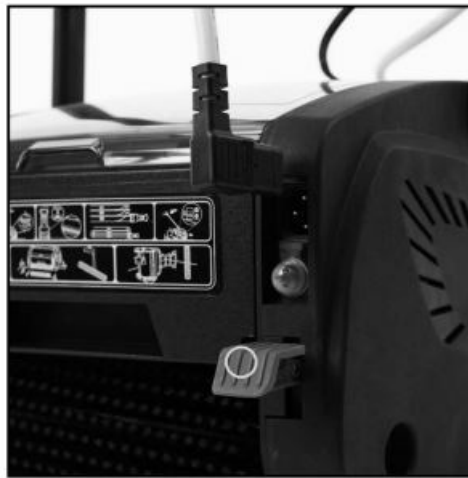


Circuit Breaker:

- In the event of circuit overload due to improper power supply or unexpected obstruction to the brush/drum rotation, the circuit breaker trips and protects the motor from damage. If this happens, UNPLUG THE UNIT, identify the cause, correct it, and reset the breaker after a minimum of 1 minute from tripping by pressing the circuit breaker button manually and continue working as normal.
- If no obstruction can be found, consult a qualified electrician as the source circuit could be potentially problematic.

On / Off Control:

- To start the motor, depress the red pedal with your foot and pull the handle back. The brushes and the drum will begin to rotate. Release the red foot pedal in this position and pull the handle towards you in order to engage rotating brushes onto the floor. To stop the operation, return the handle to the upright and locked position.



OPERATION

- Prior to machine operation, pre-sweep floor to remove debris before using the unit.
1. Fill the freshwater tank with cleaning solution at a maximum temperature of 104°F (40°C). Add cleaning solution per manufacturer's recommendations.
 2. Press the red foot pedal lightly with your foot and pull handle back to start the motor. The brushes and the drum will begin to rotate. Pulling the handle towards you WITHOUT pressing the pedal lowers the machine and engages the rotating brushes with the floor. To stop working, return the handle to the upright and locked position.



3. Move forward while sparingly pushing the solution control button. This button should only be pushed intermittently based on the floor type and amount of soil on the floor. For tiled or stone floors apply very little solution. Release the solution control button to stop the solution discharge approximately 12 inches before the end of forward motion. Continue to move forward up to the wall without pressing the button.
4. Pull the machine backward in the same track WITHOUT discharging any solution. When you reach the starting point, change the track and repeat the steps above. When you are changing the track, allow some overlap with the cleaned area to ensure complete coverage. In the case of large halls, make a U-turn while moving forward. If quick drying is required, move on the same track without discharging the solution.



Should the machine fail to operate, please refer to the troubleshooting section at the back of this instruction manual. If the problem/remedy is not listed, please contact the Tornado Technical Service Department

CLEANING

Prior to cleaning, ensure the unit is OFF and disconnected from the power supply.

1. When the floor cleaning operation is complete, return the handle to the upright and locked position and unplug the power cord. Wrap the power cord around the hooks on the handle.
2. Move the transport lever to the DOWN position to remove brushes from the floor.
3. Lift the recovery tank lid and remove the recovery tank. Empty tank and rinse completely with clean water. Clean the steel wiper blade prior to re-inserting the recovery tank.

- Avoid touching the sharp edges of the dirty water tank as injury to hands can occur.

4. To prevent possible clogging of the solution lines, empty any unused solution from the tank, lines, and filter and flush completely with clean water. Store dry.
5. Release brushes by removing brush shafts held in by quick-release retaining balls.

6. Remove brushes and wash them either by dipping them in a bucket/sink or in running water.

TORNADO-TS050-W13-U-Vortex-13-Multiwash-fig-20

- Dispose of dirty water in accordance with all local, state, and federal hazardous material disposal regulations.

7. Turn the machine on its side and wipe clean the rubberized drum and machine body with a clean, damp cloth.
8. Re-install the brushes after washing. It is easier to push the brush shaft in from the right-hand side of the machine (side of the electrical cable and foot pedal).
9. The purpose of the small multi-colored plastic plugs is to provide a method of brush identification to be used in different areas. Additionally, this helps the operator easily identify the brushes in order to avoid cross-contamination.

TRANSPORT AND STORAGE

Transport:

- Take extreme care when moving the machine up or down steps or stairs.
- Incorrect lifting techniques may result in personal injury.
- As stated earlier in this manual, this machine is heavy. Do not attempt to lift the machine without assistance.
- Carefully wrap the power cord and store in a dry, indoor location.
- DO NOT expose the machine to rain or moisture.
- When transporting the machine, ensure that all components, tanks and removable parts are securely fastened and that the power cord and plug are not trailing.
- DO NOT lift or transport the machine while it contains liquid as this will add considerable weight to the unit.
- When transporting the machine, the handle should be locked in the upright position.

Storage:

- Always store the machine with the handle in the vertical position which will turn the machine OFF.
- Wrap the power cord around the power cord wrap hooks ensuring that the plug is not trailing on the floor.
- Always unplug, empty, wipe down and dry the machine after use.

- Both the solution and recovery tanks should be emptied and flushed out with clean water to ensure the seals and pumps are free from any cleaning detergents.
- Store machine in a dry indoor area only.

MAINTENANCE

Prior to performing any maintenance, ensure unit is OFF and disconnected from power supply.

Recommended operator checks prior to use:

1. **BODY OF MACHINE** – Wipe down with a clean, damp cloth.
2. **POWER CORD** – Regularly inspect sheath, plug, and cord anchorage for damage or loose connection. Only replace power cord with OEM specified replacement part.
3. **BRUSHES** – For maximum life, wash the brushes regularly. Ensure machine is in TRANSPORT MODE when not in use. Store additional brushes in a vertical position to avoid bending of bristles. Check for permanent bending of bristles in a particular direction. This may occur if the machine is not operated for several days without removing the brushes which is not recommended. If this occurs, reverse the brush so that the bent bristles can flex back to original position.
4. **WIPER BLADE** – After an extended period of use, the wiper blade may wear. If this occurs, the water collection performance will decrease and should be replaced by an authorized service center.
5. **SOLUTION FEED FILTER** – The filter prevents clogging of the pump and spray nozzle and should be periodically cleaned.
6. **NOZZLE MAINTENANCE** – If the spray of the nozzle becomes blocked, slide the nozzle cover off and remove the nozzle. Wash the nozzle in clean water ensuring that the nozzle is clear prior to refitting.

ACCESSORIES

- Do not use side brush in a room without mop boards. Walls will get dirty.
- The side brush can be used to clean corners near the walls. UNPLUG MACHINE PRIOR TO SIDE BRUSH INSTALLATION.

Side Brush Installation:

1. Remove the front brush and brush shaft.
2. Fix the shield assembly on the side plate.
3. Insert the side brush shaft through the shield and main brush.

Side Brush Use:

1. Tilt the machine at an angle that will allow the rear brush to collect the dirty water.
2. Use side brush only for washing edges and corners of floor.



FAULT DIAGNOSIS

Do not use side brushes in a room without mop boards. The walls will get dirty.

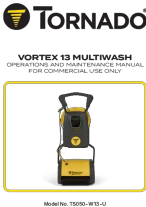
TROUBLE	REASON	REMEDY
The machine fails to start	The Transport Slider is in the DOWN position.	Move the Transport Slider to the working (UP) position.
	The circuit breaker has tripped.	Remove any obstruction to the brush/drum. Wait 1 minute and reset the circuit breaker.
	Transport wheels not raise off of the ground when the handle is lowered.	Check for debris and clean the machine.
	Lack of voltage / electrical supply.	Check the power cord, plug, and socket outlet.
The machine fails to pick up water from the floor.	Incorrectly fitted/damaged recovery tank.	Refit or replace the recovery tank.
	Worn brushes.	Check brush pressure. Replace brushes if needed.
	The drum not rotating.	See below.
The drum not rotating.	Debris around the drum or base of the machine.	Clean the drum and base of the machine.
The drum is rotating, but the brushes are not.	Debris around brushes.	Clean the drum and base of the machine.
Machine fails to spray solution on to the floor.	Faulty pump.	If there is no noise present from the pump, check that the pump cable is fitted correctly.
	Improper water hose connection.	Check the quick lock connector for proper fitting.
	The solution tank is empty.	Fill the solution tank.
	Clogged jet.	Clean jet.
	Blocked filter or faulty valve in solution tank.	Clean / replace filter or valve.
The motor makes a humming noise but does not turn.	Debris around the drum and base of the machine.	Clean the drum and base of the machine.

- Tornado Industries, LLC 3101 Wichita Court
- Ft. Worth, TX 76140-1755 Phone: 800-VACUUMS Fax: 1-817-551-0719 WWW.TORNADOVAC.COM

Record of Purchase

- Serial Number:_____
- Purchase Date:_____
- Dealer:_____
- Phone Number:_____

Documents / Resources

 <p>TORNADO VORTEX 13 MULTIWASH OPERATIONS AND MAINTENANCE MANUAL FOR COMMERCIAL USE ONLY</p> <p>Model No. TS050-W13-U</p>	<p>TORNADO TS050-W13-U Vortex 13 Multiwash [pdf] User Manual TS050-W13-U Vortex 13 Multiwash, TS050-W13-U, Vortex 13 Multiwash, Multiwash</p>
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References

- [Tornado | Commercial Cleaning Equipment](#)