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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® 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</i> <sup>1) 5)</sup></p>
	<p><b>2 Year:</b>  <i>Parts on all Tornado and Tornado/Karcher cleaning equipment</i> <sup>1) 2) 3) 5)</sup></p>
	<p><b>1 Year:</b>  <i>Labor on all Tornado and Tornado/Karcher cleaning equipment</i> <sup>2) 5)</sup></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

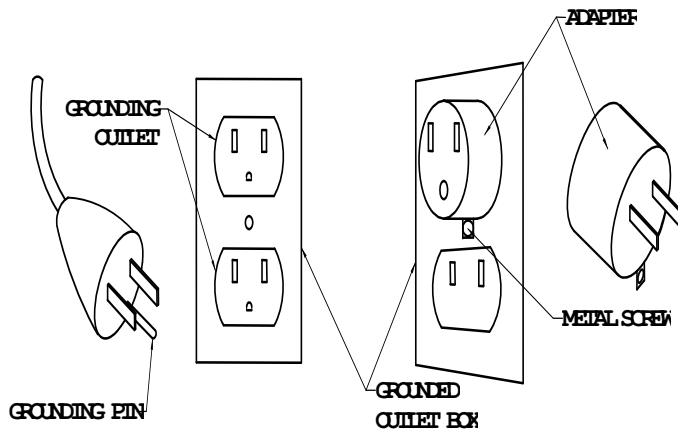
This appliance must be grounded. If it should malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk electric shock. This machine is equipped with a cord having an equipment - grounding conductor and grounding plug. The plug must be inserted into 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:

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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

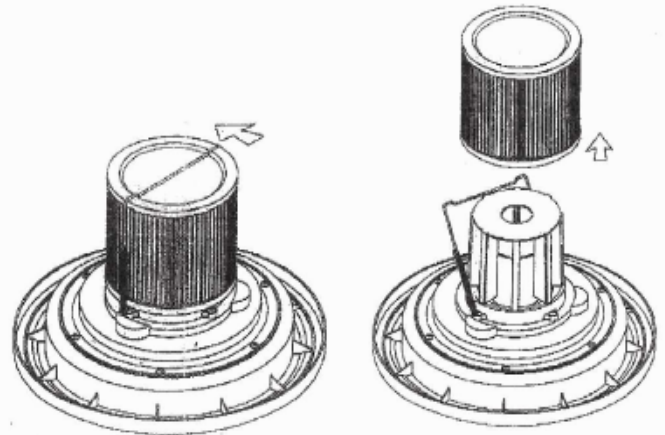
When the tank is full.

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.

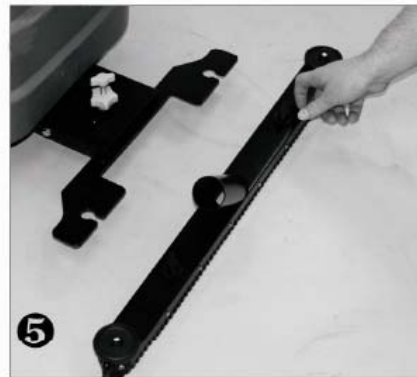
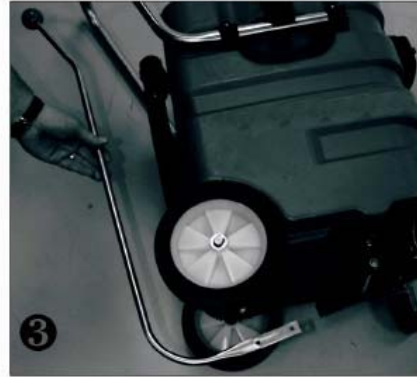
**NOTE:** This cleaner is designed with a powerful suction. Do not be alarmed if the motor noise increases when performing tougher cleaning work.

## 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.