



TORNADO INDUSTRIES, LLC
3101 WICHITA COURT
FORT WORTH, TX 76140
PHONE: 800-VACUUMS
FAX: 817-551-0719
WWW.TORNADOVAC.COM

Operations & Maintenance Manual
For Commercial Use Only



M SERIES 17" & 20"
MODEL NO:
97590 17"
97595 20"



Long Term Buyer Protection Limited Warranty

Tornado Industries, LLC. (Tornado) warrants to the end/user customer that the Tornado product(s) will be free from defects in material and workmanship for the duration(s) described below. This limited warranty DOES NOT cover machines and/or components subject to normal wear and tear, damage that occurs in shipping, failures resulting from modification, accident, unsuitable operating environment, misuse, abuse, neglect, or improper maintenance by you. For full details, contact your Authorized Tornado Distributor, Service Center, or the Tornado Technical Service Department. 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.

10 Years*

Plastic water tanks and Rotationally-molded bodies

2 Years*

Parts on all Tornado cleaning equipment

1 Year*

Labor on all Tornado cleaning equipment

1 Year*

Warranty on batteries, one year prorated

All battery warranties are handled directly by the battery manufacturer, on a one year prorated basis

Terms subject to change without notice

1. Except all Windshears™ Blowers, Storm, TV2SS, Side and Downdraft, Insulation Blowers, CV 30, CV 38, CK14/1 PRO, CK 14/2 PRO, SWM 31/9, CK LW13/1, CK LW 13/1 ROAM, CV 38/48 Dual, PV6, PV10, PV6 ROAM, Wall Mount Vacuum and all chargers are warranted for 1 (one) year for both parts and labor.
2. All non-wear item parts purchased after warranty expiration are warranted for 90 days.
3. Warranty starts from the date of sale to the consumer or, at Tornado's discretion, 6 months after the dealer purchased the unit from Tornado, whichever comes first.
4. The EB 30 is warranted for a period of 90 days for both parts and labor.
5. The warranty on engines used on propane powered equipment is limited to motor manufacturer's warranty.
6. Ride-on Scrubbers are warranted for 24 months, parts, 6 months labor or 1,000 hours, whichever occurs first.

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

Website: www.tornadovac.com
Phone 1-800-VACUUMS
Fax 817-551-0719
Address 3101 Wichita Court
Fort Worth, TX 76140



NOTES

Your new Floor Machine will afford you many years of trouble-free operating satisfaction provided it is given proper care. Prior to packaging your Floor Machine was inspected by a Quality Control Technician.

UNCRATING

Your Floor Machine was protectively packed to prevent damage in shipment. We suggest that upon removing the unit from its carton you carefully inspect it for any possible damage in transit. If damage is discovered, immediately notify the transportation company who delivered your machine. As a manufacturer, we are unable to accept upon any claim for concealed damage: you must originate the claim.

IMPORTANT SAFEGUARDS

This machine is designed to be safe when used to perform the functions specified in this Operator's Manual. Should damage occur to electrical or mechanical parts, the machine should be repaired by the manufacturer or competent service center before using in order to avoid further damage to the machine or physical injury to the user. Your floor machine is equipped with a safety switch lockout device designed for your safety. Do not attempt to bypass or defeat the safety lockout device. Never use any device to lock the power switch in the ON position.

WARNINGS

READ THIS OPERATOR'S MANUAL!

WARNING: You must have training in the operation of this machine before using it.

WARNING: Machines can burn flammable materials and vapors. Do not use this machine with or near fuels, grain dust, solvents, thinners or other flammable materials.

WARNING: Do not operate this machine unless it is completely assembled.

WARNING: Do not use this machine as a step or to move furniture.

WARNING: When disconnecting power cord from electrical outlet, grasp the plug. Pulling it out by the cord itself can damage cord insulation and internal connections to the plug. To prevent electric shock, always remove the electrical plug from the electrical outlet before doing any repairs or maintenance to this machine.

WARNING: To prevent injury, always remove the electrical plug from the electrical outlet before changing the polishing pad and before leaving the machine.

WARNING: To prevent injury, keep hands, feet, and loose clothing away from the rotating pad.

WARNING: Maintenance and repairs must be done by authorized personnel only.

WARNING: Keep all fasteners tight. Keep adjustments according to specification.

WARNING: Keep the electrical parts of the machine dry. For storage, keep the machine in a building.

WARNING: Always use a three-wire electrical system connected to the electrical ground. For maximum protection against electric shock, use a circuit that is protected by a ground fault circuit interrupter. Consult with your electrical contractor.

WARNING: To prevent damage to the power cord, do not let the pad, pad driver or wheels touch the power cord when the machine is running. Always lift the power cord over the machine.

WARNING: Make sure all labels, decals, warnings, cautions and instructions are fastened to the machine.

WARNING: To avoid fire, do not use unit with a flammable or combustible liquid to clean floor.

These guidelines are presented for your protection and convenience. Please read them carefully, since a failure to heed these precautions could result in discomfort or injury. When using an electrical appliance, basic safety precaution should always be followed

APPLICATIONS FOR FLOOR MACHINE 175RPM

The 175 RPM floor machine will operate in a wide variety of applications and can be used for spray buffing, dry buffing, scrubbing and stripping applications. These heavy duty floor machines are specially recommended for long term aggressive scrubbing and stripping maintenance. The heavy duty floor machines are specially recommended for the following application”

Scraping with an attachment tool to remove heavy industrial deposits and residue or to prepare a foundation for installation or carpet

Wire brushing or concrete floors

Sanding with very aggressive sandpaper or sand scree discs

Carpet restoration where shampooing & pile lifting require very stiff brush bristles. The 175 RPM floor machine is the most versatile speed in the floor care industry.

APPLICATIONS OF 175 RPM STANDARD SPEED FLOOR MACHINE ON HARD FLOORS

Spray buffing the red spray buff pad and spray buff chemical.

Dry buffing a buffable finish with a tan, beige, or white pad or brush.

Scrubbing with free or blue pad or scrubbing brush.

Stripping with a black pad and a stripping chemical.

APPLICATIONS OF 175 RPM STANDARD SPEED FLOOR MACHINE ON CARPET

Bonnet cleaning with a yarn bonnet and carpet maintainer chemical.

Shampooing using a shower feed shampoo brush and solution tank mounted to the handle tube containing carpet shampoo.

WARNING

To prevent injury, always remove the electrical plug from the electrical outlet before changing the polishing pad and before leaving the machine.

PREPARE THE MACHINE FOR OPERATION

To attach the drive block or brush or other attachment, be sure the handle is “locked in the upright position (see figure #1). Lay the floor machine on its back with the handle lying on the floor, this exposes the driving plate on the underside of the floor machine. Holding the drive block, brush or attachment in both hands and straddling the motor with your back to the handle box. Bend over and fit the three slots to the clutch plate (built into the back of the brush) over the three lugs of the driving plate. Turn the drive bloc, brush, or other attachment counter-clockwise as far as it will go until it is seated in the ready-to-use position (see figure #2). **CAUTION:** This is the only proper way to install a drive block, brush or attachment. NEVER put a drive block, brush or attachment on the machine by placing it on the floor and moving the running machine over it, or by placing the machine over the block or attachment and then starting the motor. Return the floor machine to the upright position and adjust the handle to an operating position. Recommended handle position is close the waist with arms extended down. Lock the cam release lever into position. **NOTE:** *The hardened steel cam release lever does not require extreme tightening to effectively hold the handle in position. Over-tightening the can release lever will shorten the functional life of the lever. To remove drive block, brush or attachment: Lay the floor machine on its back again and disengage clutch plate slot from driving plate lugs by turning it clockwise.*



Figure #1



Figure #2

HOW TO OPERATE THE MACHINE

First, install the pad driver and pad, brush, or other attachment to be used. Plug the machine in as directed and lower the handle to the desired operating height and lock in place using the cam lever handle. Push the safety switch forward (see figure #3) and squeeze the switch triggers beneath the handle grips. This activates the motor and starts the block, brush or attachment in operation. Each time you release the triggers the safety switch will reset. You will need to follow the direction above to restart the machine. **CAUTION:** *When leaving the machine unattended, disconnect the wall plug and return the handle to the "locked" upright position to prevent accidental starting.*

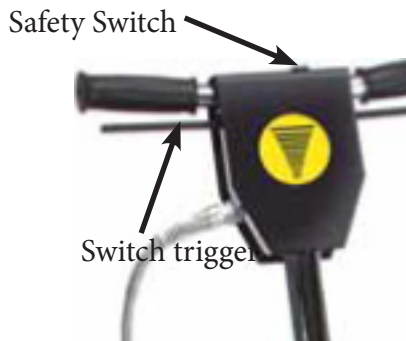


Figure #3

TO INSTALL THE OPTIONAL SOLUTION TANK

Mount the solution tank to the front of the handle and attach with mounting brackets and knobs. Position the solution tank control handle horizontally and below the switch lever of the machine and adjacent to the right handle grip. Remove the plug from the motor housing and insert the (long) extension tube adaptor and secure at bottom of machine with the retainer. The solution tank should be used only with a shower feed drive block or bush.

TRANSPORTING THE MACHINE

Place the handle in the upright position. Lock the handle can release lever. Tip the machine back and transport on the wheels.

TO GUIDE YOUR FLOOR MACHINE

To the Right: raise the handle slightly. The higher the handle is lifted, the faster the machine will move to the right. To the Left: lower the handle until the machine moves to the left. The more the handle is lowered the faster the machine will move to the left.

MAINTENANCE

Once a month remove the motor cover and vacuum out any dust or debris which has accumulated on the motor. Replace the motor cover by setting it over the holes in the housing and replace all of the screws. Check and maintain the tightness of all the fasteners.

WARNING: Do not over-tighten the switch housing screws.

Keep the machine clean especially at the handle tube and collar so the handle tube will move freely through the collar. Inspect the cord for cuts, gashes, or loose prongs; replace as needed. Disassembly of this motor voids the warranty. Improper disassembly and assembly of this motor can permanently damage the field or rotor.

TROUBLESHOOTING

Problem	Possible Cause
Machine will not start	Circuit breaker has tripped (Allow the circuit breaker 2 minutes to cool before resetting). Circuit breaker will not reset. Replace. Switch is defective. Replace. Cord is damaged. Replace. Plug is broken or has a loose contact. Replace.
Machine will not reach operating speed	Over drawn circuit. Unplug anything other than the machine from the circuit or locate another circuit.
Motor runs but pad or brush does not turn	Coupling is broken. Replace.

Warranty Registration Form

Please provide additional information on
Tornado equipment: (Check choices below)

- | | |
|---|---|
| <input type="checkbox"/> Automatic Scrubbers | <input type="checkbox"/> Sweepers |
| <input type="checkbox"/> Propane Floor Machines | <input type="checkbox"/> Rotary Floor Machine |
| <input type="checkbox"/> High Speed Burnishers | <input type="checkbox"/> Carpet Vacuums |
| <input type="checkbox"/> Carpet Extractors & Spotters | <input type="checkbox"/> Wet/Dry Vacs |
| <input type="checkbox"/> Steam Cleaners | <input type="checkbox"/> Jumbo Vacs |
| <input type="checkbox"/> Ride-On Equipment | <input type="checkbox"/> Pressure Washers |

See complete product info at www.tornadovac.com

Selling Dealer: (Required) _____

Please Print Clearly

Company/Institution	
Contact Name	Title
Address	City/State/Zip Code
Phone	Fax
Date of Purchase	Email

See white metal plate or sticker on unit for this information.

MACHINE TYPE/MODEL NUMBER:	MACHINE SERIAL NUMBER:
1. _____	1. _____
2. _____	2. _____
3. _____	3. _____
4. _____	4. _____

Facility Description (please circle all that apply)

- | | | |
|------------------------|---------------------------|---------------------|
| 1. School | 9. Hospital | 17. U.S. Govt. |
| 2. Retail Store | 10. Nursing Home | 18. Other Govt. |
| 3. Restaurant | 11. Religious Institution | 19. Auto Service |
| 4. Office Building | 12. Airport | 20. Airport |
| 5. Contract Cleaning | 13. Warehouse | 21. Non-Profit |
| 6. Light Manufacturing | 14. Apartment/Condo | 22. Other (specify) |
| 7. Heavy Manufacturing | 15. Warehouse | |
| 8. College/University | 16. Supermarket | |

How did you first learn about Tornado cleaning and maintenance equipment?	In square feet (meters)	
	Total Hard Floor Area	Total Carpeted Area Square feet (square meters)
<ul style="list-style-type: none"> <input type="radio"/> Contacted by local dealer <input type="radio"/> Previous experience with Tornado products <input type="radio"/> Reputation/ Recommendation <input type="radio"/> Advertising <input type="radio"/> Direct mail <input type="radio"/> Internet <input type="radio"/> Other 	<ul style="list-style-type: none"> <input type="radio"/> 0-10,000 (0-930) <input type="radio"/> 10-50,000 (930-4,650) <input type="radio"/> 50-250,000 (4,650-23,250) <input type="radio"/> Over 250,000 (over 23,260) 	<ul style="list-style-type: none"> <input type="radio"/> 0-10,000 (0-930) <input type="radio"/> 10-50,000 (930-4,650) <input type="radio"/> 50-250,000 (4,650-23,250) <input type="radio"/> Over 250,000 (over 23,260)

Damage or defect arising from abuse, neglect or other misuse is excluded from this warranty. Other items may or may not apply based on your specific machine. If any defect occurs, the warranty is voided if service is attempted by non-Authorized Tornado Service Centers.

Return to :
Tornado Industries
3101 Wichita Court
Fort Worth, TX 76140
Fax: 817-551-0719
or online at
www.tornadovac.com

