TORNADO INDUSTRIES 7401 W. LAWRENCE AVENUE CHICAGO, IL 60706 (708) 867-5100 FAX (708) 867-6968 www.tornadovac.com



Operations & Maintenance Manual



MODEL NO. 99685 BR 18/11

TABLE OF CONTENTS

TECHNICAL DESCRIPTION1	STOP OF THE MACHINE AFTER CLEANING OPERATION9
WARRANTY2	DAILY MAINTENANCE 9-10
SAFETY INSTRUCTIONS	Recovery tank cleaning
FEATURES INSTRUMENT BOARD AND CONTROLS4	Float cleaning9
FEATURES OF MACHINE4	Brush cleaning9
INTRODUCTORY COMMENT4	Brush disassembly9
SYMBOLS 5	Squeegee cleaning
BEFORE USE 5	WEEKLY MAINTENANCE
Unpacking the machine 5	Rear squeegee rubber replacement
BATTERY INSTALLATION	Squeegee hose cleaning
AND SETTING THE BATTERY TYPE 6-7	Cleaning of solution tank and filter
Battery charger6	TWO-MONTH MAINTENANCE
Battery disposal	Front squeegee rubber replacement
Battery recharging	TROUBLESHOOTING GUIDE
Battery charge level indicator 7	Signals on the display
HOUR METER7	The suction motor does not work
SQUEEGEE ASSEMBLY 7	The brush motor does not work
Adjustment of the squeegee height	Insufficient water on the brush
Adjustment of the squeegee inclination	The machine does not clean properly
BRUSH ASSEMBLY	The squeegee does not dry perfectly
RECOVERY TANK 8	Excessive foam production
DETERGENT SOLUTION TANK 8	PROGRAMMED MAINTENANCE
FLOOR CLEANING8-9	
Connecting battery to the machine 8	
Starting the machine	
Brush pressure adjustment 8	
Overflow device8	
Emptying detergent solution	
Forward movement9	
Stop9	
·	

TECHNICAL DESCRIPTION				
Model	BR 18/11			
Machine Dimensions				
LXWXH	43" X 21" X41"			
Net Weight	157lbs.			
Solution / Recovery Tank	11 gal. / 12 gal.			
Squeegee Width	31"			
Design Characters				
Tank Construction	Polyethylene			
Cleaning System				
Brush Type	Cylindrical			
Brush Width	18"			
Brush RPM	1300			
Brush Pressure	50 lbs.			
Cleaning Path	18"			
Productivity				
Cleaning Rate (Sq. Ft Per Hour)	5000			
Motors				
Vacuum Motor	.6 hp			
Brush Motor	.6 hp			
Sound Level	66 dB			
Battery				
Voltage	24			

Long-term buyer protection warranties

Tornado Standard Warranty Program*

Warranties do not cover components subject to normal wear or

limitations not specified here.
For full details, contact your Authorized

abuse and misuse, and have other

Tornado Distributor, Service Center, or the Tornado Service Department.

Tornado sales and services 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:

All plastic tanks and rotationally-molded bodies

2 Year:

On all Tornado components *except as shown below

1 Year:

Labor on all Tornado cleaning equipment *except as shown below

1 Year:

Warranty on batteries and chargers, one year, pro-rated

All battery warranties are handled by the battery manufacturer, please call customer service for more information.

Thank you for choosing Tornado products. We are proud to offer the most complete line of commercial and industrial cleaning equipment in the industry. Our reputation for quality, innovation and durability is unsurpassed.

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.

1-800-VACUUMS Chicago area: (708) 867-5100 Fax: (708) 867-6968 7401 W. Lawrence Avenue Chicago, IL 60706

Form# F2665-Rev.4/01/07 IH © 2007. All rights reserved

^{*} Effective January 1st, 2007. Terms subject to change without notice.

¹⁾Windshear™ Blower-Dryers, Insulation Blowers, CK LW 13/1, CK 14/1, CV 30, CV 38, Pro PAC Vacs, PV 6 Back Pack Duo-Upright Carpetkeepers™, and all chargers are warranted for 1 (one) year for both parts and labor.

²⁾Warranties on the EB30 are 90 days (batteries, charger, parts, accessories)

³⁾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 all riding scrubbers inluding the 75/140 & 90/140 are 24 months parts/12 months' labor OR 1,000 hours of operation whichever comes first.

⁴⁾All non-wear item parts purchased after warranty expiration are warranted for 90 days.

⁵⁾Warranty starts from the date of sale to the consumer 6 months after dealer purchased the unit from Tornado, whichever comes first.

GENERAL SAFETY RULES

The rules below have to be followed carefully in order to avoid injuries to the operator and damages to the machine.

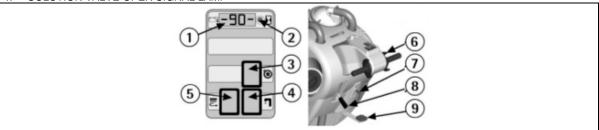
- Read the labels carefully on the machine. Do not cover them for any reason and replace them immediately if damaged.
- The machine must be used exclusively by authorized staff who has been instructed for its use.
- During the working of the machine, pay attention to other people, especially children.
- Do not mix different detergents, avoid harmful odors.
- Do not place any liquid containers onto the machine.
- Storage temperature: between 33°F and +110°F.
- Perfect operating temperature: between 33°F and 104°F.
- The humidity should be between 30 and 95%.
- Do not use the machine in an explosive atmosphere.
- Do not use the machine as a means of transport.
- Do not use acid solutions that could damage the machine and/or injure people.

- Avoid working with the brush when the machine stands still in order to prevent floor damages.
- Do not use the machine on surfaces covered with inflammable liquids or dust (for example hydrocarbons, ashes or soot).
- In case of a fire, use a powder fire extinguisher. Do not use water.
- Do not strike shelvings or scaffoldings, where there is danger of falling objects.
- Adapt the working speed to the adhesion conditions.
- The machine has to carry out simultaneously the operations of washing and drying.
- Signal the areas of wet floors with suitable signs.
- If the machine does not work properly, check by conducting simple maintenance procedures. Otherwise, ask for technical advice to an authorized assistance center.
- Where parts are required, ask for ORIGINAL spare parts to the distributor and/or to an authorized dealer.
- Use only ORIGINAL brushes.
- For any cleaning and/or maintenance operations, take off the power supply from the machine.

- Do not remove covers on areas that require the use of tools.
- Do not wash the machine with direct water jets or with high water pressure, nor with corrosive material.
- Every 200 working hours have a machine checked through an authorized service department.
- In order to avoid scales on the solution tank filter, do not fill the detergent solution many hours before the machines' use.
- Before using the machine, check that all panels and coverings are in the position as indicated in this use and maintenance catalog.
- Be sure the recovery tank is empty before removing it.
- Restore all electrical connections after any maintenance operation.
- Provide for the scrapping of the material of normal wear following strictly the respective rules.
- When your machine has to stop activity, provide for the appropriate waste disposal of its materials, especially oils, battery and electronic components. Consider that the machine itself has been constructed by recyclable materials.

LEGEND INSTRUMENT BOARD AND **CONTROLS**

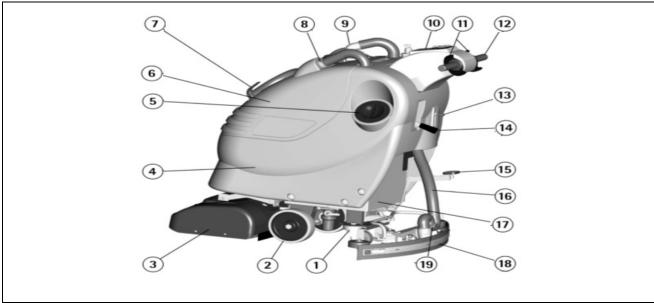
- CHARGE LEVEL DISPLAY: BATTERIES/HOUR **METER**
- VISUALIZATION PUSH BUTTON: HOUR/METER
- SUCTION MOTOR SWITCH
- SOLUTION VALVE OPEN SIGNAL LAMP
- **BRUSH MOTOR SWITCH**
- 6. **BRUSH ACTIVATION LEVERS**
- SOLUTION VALVE LEVER 7.
- 8. SQUEEGEE LIFTING LEVER
- BRUSH HEAD LIFTING PEDAL



LEGEND MACHINE

- **CASTER WHEELS**
- 2. 3. WHEELS
- **BRUSH HEAD**
- **SOLUTION TANK**
- SCREW CAP FOR INLET DETERGENT SOLUTION 5.
- **RECOVERY TANK**
- RECOVERY TANK DRAIN HOSE
- INLET OPENING SUCTION HOSE
- FLOAT ASSEMBLY COVER

- 10. INSTRUMENT BOARD
- **BRUSH ACTIVATION LEVER**
- HANDLE BARS 12.
- SOLUTION VALVE LEVER 13.
- SQUEEGEE LIFTING LEVER
- 15. **BRUSH HEAD LIFTING PEDAL**
- SUCTION HOSE 16.
- 17. **BATTERY**
- SQUEEGEE ASSEMBLY
- SPRING SQUEEGEE HOSE GUIDE 19.



INTRODUCTORY COMMENT

Thank you for having chosen our machine. This floor-cleaning machine is used for industrial and commercial cleaning and is able to clean any type of floor. During its forward movement, the combined action of the brush and the detergent solution removes the dirt that is aspirated through the rear suction assembly, giving a dry surface.

The machine must be used only for such purposes. It gives the best performance if it is used correctly and maintained in perfect condition. We therefore ask you to read this instruction booklet carefully whenever difficulties arise in the course of the machine's use.

SYMBOLS



Symbol denoting the solution valve. Indicates the solution valve lever. Indicates the signal lamp of the open solution valve.



Symbol denoting the brush. Indicates the switch of the brush motor.



Symbol denoting the suction motor. Indicates the switch of the suction motor.



Symbol denoting up – down of the squeegee. Indicates the squeegee lever.



Symbol denoting the charge level of the battery.



Symbol denoting the hour meter.



Indicates the exhaust hose of the recovery tank.



Indication of the maximum temperature of the solution detergent.

It is placed near the charging hole of the solution tank.



Symbol denoting the open book. Indicates that the operator has to read the manual before the use of the machine.



Warning symbol. Read carefully the sections marked with this symbol, for the security of both the operator and the machine.

BEFORE USE

Handling of the packed machine

The machine is supplied with suitable packing for forklift truck handling.

The total weight is 209 lbs.

Packing dimensions:

Base: 46.26 in. x 26.18 in.

Height: 46.65 in. **ATTENTION:**

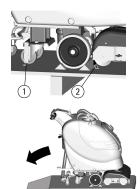
Do not place more than 2 pallets on top

of each other.

Unpacking the machine

- 1. Remove the external packing.
- 2. Unscrew the brackets (1+2) that secure the machine to the pallet.

- 3. Move the machine backwards, as indicated in figure, avoiding heavy contacts to mechanical parts.
- 4. Keep the pallet for future transport.



Battery installation and setting the battery type

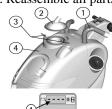
This machine is equipped with two batteries at 12V in series connection, placed in its appropriate compartment under the recovery tank. It must be handled using suitable lifting equipment (due to weight and coupling system).

The connection of the battery cables has to be carried out by specialized staff, because the inversion of polarity causes damage of the electrical components. Before the machine is supplied with power, check that the red cable is connected to the positive (+) pole of the battery.



For battery installation, proceed as follows:

- 1. Take off the squeegee hose (1).
- 2. Take off the suction cover (2) after turning the blocking levers (3).
- 3. Take off the recovery tank (4).
- 4. Place the battery in its compartment.
- 5. Connect the terminals, respecting the polarities, avoiding contact with other parts that could create short circuit.
- 6. Reassemble all parts.

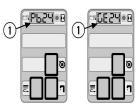




ATTENTION:

In case of GEL battery installation, it is necessary to set the battery check card.

Please contact an authorized technical assistant.



ATTENTION:

Strictly follow manufacturer/distributor indications for the maintenance and daily recharge of the battery. Specialized staff, using suitable protection and accessories, must execute all installation and maintenance operations.

Battery charger

Be sure that the battery charger is suitable for the installed battery both for their capacities and for type GEL and equivalent.

ATTENTION:

Qualified staff must carry out this operation. A wrong or faulty cable connection can create serious damage to persons or things.

Battery recharging

Bring the machine on a leveled surface.

Plug in battery connector (1) placed in the rear part of the machine, to connector (3) of the battery charger.

ATTENTION:

Never charge a GEL battery with a non-suitable charger. Strictly follow the instructions supplied by the battery and charger manufacturer. In order not to cause permanent damage to the battery, it is necessary to avoid their complete discharge. Provide recharging within a few

minutes after battery discharge signal starts blinking.

NOTE: Never leave battery completely discharged even if the machine is not used. In case of a traditional battery, please check the electrolyte level every 20 recharging cycles and eventually fill them up with distilled water.

ATTENTION:

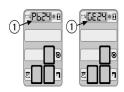
For the daily recharge of the battery, it is necessary to follow strictly all the indications given by the manufacturer/distributor. Qualified staff must carry out all the installation and maintenance operations. Danger: Gas exhalations, emission of corrosive liquids. Do not approach in case of fire.

Battery disposal

Dispose the battery properly.

Battery charge level indicator

WHEN THE MACHINE IS SWITCHED ON, THE DISPLAY (1) SHOWS THE SETTING OF THE BATTERY CHECK CARD: GE 24: check card set for GEL battery.



On the display (1) the following indication of the battery charge level is digital and indicates the percentage of the battery charge. 90 is the maximum charge, down to a minimum of 10, indicating every 10% decrease.

When the charge level reaches 10%, the display starts blinking indicating the end of the battery charge.



ATTENTION:

After a few seconds from the four blinking "----" dashes, the brush motor stops automatically. It is possible to finish the drying operation before proceeding to the recharge.

Hour meter

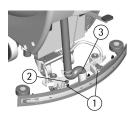
The machine is equipped with an hour meter located on the same display of the battery's charge level indicator (1). Keep the button (2) pressed for more than 3 seconds, the first data indicates the working hours and after a few seconds, the working minutes are shown.



Squeegee assembly

With the squeegee support lowered, slide the two stud bolts (1) placed on the upper part of the squeegee inside the slots on the support. Block the squeegee by rotating the lever (2) clockwise.

Insert the squeegee hose (3) into its coupling, respecting its position as indicated in the figure.



Adjustment of the squeegee height

The squeegee must be adjusted in height depending on the rubber wear. In order to guarantee a perfect drying during the operation, the lower blade of the rear squeegee rubber (4) must work slightly bent backwards (operator side) in uniformed way in all its length.

Turn the two knobs (5) clockwise to increase the bending of the rubber and counterclockwise to decrease the rubber bending.

A label placed near the two knobs (5) indicate rotation to increase or reduce the height.

Note: The wheels of the squeegee support must be adjusted through the knobs (5) at the same height so that the squeegee works parallel to the floor.





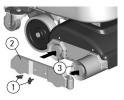
Adjustment of the squeegee inclination

To increase the rubber bending in the central part, it is necessary to tilt the squeegee rotating counterclockwise the knob (6). To increase the rubber bending on the squeegee extremities, rotate the knob clockwise.



Brush assembly

- 1. Take off the electric supply to the brush motor unplugging the battery connector (1).
- 2. Step on the pedal to lift the brush head.
- 3. With the brush head in lifted position, unscrew the two wing nuts (1) and then remove the side support of the brush (2).
- 4. Insert the brush (3) into their seats from the side of the hexagonal coupling, find the coupling at the opposite end and insert them completely.
- 5. Reposition the side support (2) so that the support pins enter into the bearing holes visible at the center of the brush frame.
- 6. Retighten and block the wing nuts.

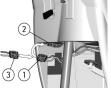


ATTENTION:

Use only the brush supplied with the machine. The use of other brushes can damage the machine.

Recovery tank

Check that the cover of the suction float filter (1) is correctly secured after rotating the levers and whether the suction motor hose (2) is correctly connected.



Verify also that the squeegee hose is correctly inserted into the seats (3 and 4), and that the drain hose (5) has the plug in place.



Detergent solution tank

The capacity of the detergent solution tank is indicated in the technical data.

Open the screw cover cap (1) placed in the rear left part of the machine and fill the detergent solution tank with clean water at a maximum temperature of 122°F. Add the liquid detergent in the percentage and conditions as indicated by the manufacturer. To avoid excessive foam presence, which could cause problems to the suction motor, use the minimum percentage of detergent. Screw down the cap to close the tank.



ATTENTION:

Use always-low foam detergent. To avoid foam presence, before starting working operation, introduce into the recovery tank a minimum quantity of antifoam product. Never use pure acid.

FLOOR CLEANING Connection of the battery to the machine

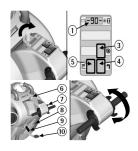
Plug in the battery connector (1) to the machine connector (2), placed in the rear part of the machine.

Starting the machine

- 1. Press the brush motor switch (5).
- 2. Check the battery type and the charge level on the display (1).
- 3. Press the suction motor switch (3).
- 4. Using the solution valve lever (8) adjust the solution detergent quantity bringing the floor uniformly wet, avoiding the leakage of detergent from the protection. Always consider that the correct quantity of solution detergent depends on the type of floor, its dirtiness and machine's speed.

When using this lever, the indicator on the instrument board of the open solution valve (4) will turn on.

- 5. With the brush base lifting pedal (10) lower the brush base.
- 6. Use the squeegee-lifting lever (9) to lower the squeegee.
- 7. By activating the levers (7), the brush will start rotating resulting to the machine's forward movement. The squeegee will start drying the floor.
- 8. During the first hours check that the detergent solution flow is appropriate and that the squeegee adjustment guarantees a perfect drying action.



Adjustment of brush pressure

Through the knob (1) placed on the internal part of the front right wheel, it is possible to adjust the brush pressure on the cleaned surface.

By turning the knob clockwise, the pressure increases, rotating the wing nut counterclockwise, the pressure decreases.

This device allows a more efficient cleaning action on very difficult and dirty surfaces.



Overflow device

In order to avoid serious damage to the vacuum motor, the machine is equipped with a float that intervenes when the recovery tank is full, closing the suction hose and stopping the suction.

When this happens, it is necessary to empty the recovery tank.

- 1. Hold the drain hose placed in the front part of the machine.
- 2. Take off the drain plug by pulling its lever. Empty the recovery tank into appropriate containers, according to the standard norms for the liquid disposal.



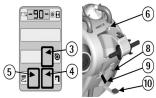
ATTENTION:

This operation must be carried out using gloves for protection against dangerous solutions.

STOPPING OF THE MACHINE AFTER CLEANING OPERATION

Before executing any type of maintenance:

- 1. Close the solution valve lever (8) and check that the indicator for the open solution valve (4) on the instrument board turns off.
- 2. Lift the brush head using the pedal (10).
- 3. Lift the squeegee with the lever (9).
- 4. Turn the brush motor switch off (5).
- 5. Turn the suction motor switch off (3).
- 6. Bring the machine to an appropriate place for draining tanks.



ATTENTION:

The machine is not equipped with a parking brake; therefore do not leave it on slopes.

DAILY MAINTENANCE

Recovery tank cleaning

- 1. Hold the drain hose placed in the front part of the machine.
- 2. Take off the drain plug by using its lever. Empty the recovery tank into appropriate containers (see under "OVERFLOW DEVICE").
- 3. Take off the suction cover (1) after rotating the blocking levers (2).

- 4. Take off the filter and filter protection.
- 5. Rinse the tank with a water jet.



ATTENTION:

This operation must be carried out using gloves for protection against dangerous solutions.

Emptying detergent solution

To empty the detergent solution remaining in the solution tank:

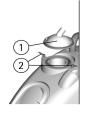
- 1. Bring the machine to an appropriate place for tank draining.
- 2. Unscrew the solution tank cap.
- 3. Remove solution filter, let it drain.

ATTENTION:

This operation must be carried out using gloves for protection against dangerous solutions.

Suction filter cleaning

- 1. Take off the suction cover (1) after rotating the blocking levers (2).
- 2. Take off the filter and filter protection.
- 3. Clean all parts with a water jet especially inside surfaces and filter bottom.
- 4. Carry out carefully the cleaning operations.
- 5. Reassemble all parts.





Brush cleaning

Disassemble the brush and clean them with a water jet (for disassembly, see as follows under "BRUSH DISASSEMBLY").

Brush disassembly

- 1. Lift the brush head by lowering the pedal (10).
- 2. Take off the electric supply to the brush motor unplugging the battery connector (1).



- 3. With the brush head in lifted position, unscrew the two wing nuts (1) and then remove the side support of the brush (2).
- 4. Take off the brush (3) from their seats to proceed for their cleaning or replacement.
- 5. To reassemble, insert the brush (3) into their seats from the side of the hexagonal coupling. Make sure the coupling is at the opposite end.
- 6. Reposition the side support (2) so that the support pins enter into the bearing holes visible at the center of the brush frame.
- 7. Retighten and block the wing nuts.



ATTENTION:

The execution of brush disassembly operations with electric supply on may cause hand injuries.

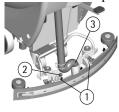
ATTENTION:

The handling of the brush operation must be carried out using suitable gloves to protect both mechanically from contact with the bristles and the chemical risk of contact with dangerous solutions.

Squeegee cleaning

Keeping the squeegee clean guarantees the best drying action. For cleaning, it is necessary to:

- 1. Take off the squeegee hose (3) from its coupling.
- 2. Disassemble the squeegee from its support by rotating the lever (2) counterclockwise and sliding the stud bolts (1) in their slots up to their release.
- 3. Clean with care the internal part of the squeegee inlet eliminating eventual dirt residuals.
- 4. Clean with care the squeegee rubbers.
- 5. Reassemble all parts.



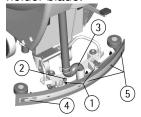
WEEKLY MAINTENANCE

Rear squeegee rubber replacement

Check the squeegee rubber wear and eventually turn or replace it. For replacement, it is necessary to: 1. Lift the squeegee using the lever (fig. 1, pos. 17).

- 2. Release the hook (4) of the rubber holder blade and take the rubber off.
- 3. Turn the rubber to a new side or replace it.

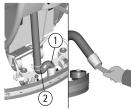
To reassemble the squeegee repeat in reverse the operations mentioned above, inserting the rubber on the guides (5) and blocking it with the rubber holder blade.



Squeegee hose cleaning

In case of insufficient suction, check that the squeegee hose is not obstructed. To clean it, proceed as follows:

- 1. Take off the hose from the squeegee coupling (1) and release the guide spring of the suction hose (2).
- 2. Wash the inside of the hose with a water jet, from the squeegee hose side
- 3. To reassemble the hose repeat in reverse the operations mentioned above.



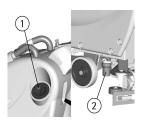
Cleaning of solution tank and filter

- 1. Bring the machine to an appropriate place for draining tanks.
- 2. Unscrew the solution tank cap (1).
- 3. Remove solution filter (2).
- 4. Rinse the solution tank with a water jet.

- 5. Rinse the solution tank filter placed inside the exhaust plug, under the machine.
- 6. Reassemble all parts and close, if present, the solution valve of the drainage device.

ATTENTION:

This operation must be carried out using gloves for protection against dangerous solutions.

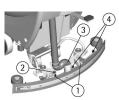


TWO-MONTH MAINTENANCE

Front squeegee rubber replacement

Check the wear of the squeegee rubber and eventually replace it. For replacement, it is necessary to:

- 1. Take off the squeegee hose (3) from its coupling.
- 2. Disassemble the squeegee from the support rotating the levers (2) counterclockwise sliding the stud bolts (1) in their slots.
- 3. Unscrew the wing nuts (4) in the front part of the squeegee.
- 4. Take off the rubber holder blade.
- 5. Replace the front rubber.
- 6. Reassemble all parts.



The checking of all the other machine operations is left to an authorized technical assistant.

TROUBLESHOOTING GUIDE

Signals on the display

A001: Indication of the version of the electronic check card (the last number indicates the revision of the check card).

GE24: Indication battery check card set for gel battery.

---- (blinking): signal indicating the discharged battery and intervention of the brush stop device.





The vacuum does not work

Verify that the switch (3) is on. If the problem persists, please contact an authorized technical assistant.



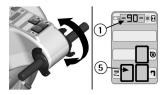


The brush motor does not work

- 1. Check the charge level of the battery.
- 2. Check that the battery connector(1) is correctly plugged in.
- 3. Verify that the switch (5) is on.
- 4. Activate the levers.

If the problem persists, please contact an authorized technical assistant.





ATTENTION: Never leave the battery discharged for a long time.

Insufficient water on the brush

- 1. Check that the solution valve lever (8) is open.
- 2. Check the level of the liquid in the solution tank.
- 3. Check that solution filter (1) is clean

If the problem persists, please contact an authorized technical assistant.



The machine does not clean properly

1. The brush does not have the suitable bristle dimension: use only original brush. For advice, contact an authorized technical assistant.

- 2. The brush bristles are worn out. Check the brush wear condition and eventually replace them. To replace the brush, see instructions at paragraph "BRUSH DISASSEMBLY" and "BRUSH ASSEMBLY".
- 3. The solution detergent is insufficient: open more the solution valve.
- 4. Check that the liquid detergent is in the recommended percentage. Contact authorized technical assistance for advice.

The squeegee does not dry perfectly

- 1. Check that the squeegee rubbers are clean.
- 2. Check the height and inclination of the squeegee (see under "SQUEEGEE" in "BEFORE USE").
- 3. Check that the suction hose is correctly inserted in the proper seat on the recovery tank.
- 4. Clean the suction filter.
- 5. Replace the rubbers if worn out.
- 6. Check that the vacuum switch is on.
- 7. Check that the recovery tank is empty.

Excessive foam production

Check that low foam detergent has been used. Eventually add small quantities of anti foam liquid into the recovery tank.

Please be aware that a bigger quantity of foam is produced when the floor is not very dirty. In this case please dilute detergent solution.

PROGRAMMED MAINTENANCE

INTERVENTION	DAILY	WEEKLY	TWO- MONTH	SIX-MONTH
RECOVERY TANK CLEANING	•			
SUCTION FILTER CLEANING	•			
SOLUTION TANK FILTER CLEANING		•		
BRUSH CLEANING	•			
BRUSH DISASSEMBLY	•			
SQUEEGEE CLEANING	•			
FRONT SQUEEGEE RUBBER REPLACEMENT			•	
REAR SQUEEGEE RUBBER REPLACEMENT			•	
SQUEEGEE ADJUSTMENT CHECK		•		
SQUEEGEE HOSE CLEANING		•		
SOLUTION TANK CLEANING		•		
BATTERIES ELECTROLYTE CHECK		•		
BRUSH MOTOR CHECK				•
VACUUM MOTOR CHECK				•
BRUSH BASE GROUP CHECK			•	
SCREW TIGHTENING				•

WARRANTY REGISTRATION FORM

on Tornado equipment: (CI	reck choices below)
Automatic Scrubbers	Sweepers
Propane Floor Machines	Rotary Floor Machines
High Speed Burnishers	Carpet Vacuums
Carpet Extractors & Spotters	☐ Wet/Dry Vacs
Steam Cleaners	☐ Jumbo Vacs
Ride-on Equipment	Pressure Washers
See complete product info at	www.tornadovac.com

SELLING DEALER: (required)

Please print clearly.

			- mariabet	_		
CONTACT NAME		TITL	E			
ADDRESS		CITY/STATE/ZIP CODE				
PHONE		FAX				
DATE OF PURCHASE		EMA	IL			
See white metal pla			is infon	nation	SERIAL NUMBER:	
1.		"	1.			
			2.			
					-	
Facility Description (pleas			у)			
. School	9.	Hospital		17.	-1-1	
. School . Retail Store	9. 10.	Hospital Nursing Home		18.	Other Govt.	
. School Retail Store . Restaurant	9. 10. 11.	Hospital Nursing Home Religious Institu		18. 19.	Other Govt. Auto Service	
School Retail Store Restaurant Office Building	9. 10. 11. 12.	Hospital Nursing Home Religious Institu Airport		18. 19. 20.	Other Govt. Auto Service Shopping Ctr.	
School Retail Store Restaurant Office Building Contract Cleaning	9. 10. 11. 12. 13.	Hospital Nursing Home Religious Institu Airport Warehouse	ution	18. 19. 20. 21.	Other Govt. Auto Service Shopping Ctr. Non-Profit	
School Retail Store Restaurant Office Building Contract Cleaning Light Manufacturing	9. 10. 11. 12. 13. 14.	Hospital Nursing Home Religious Institu Airport Warehouse Apartment/Con	ution	18. 19. 20.	Other Govt. Auto Service Shopping Ctr. Non-Profit	
School Retail Store Restaurant Office Building Contract Cleaning	9. 10. 11. 12. 13. 14. 15.	Hospital Nursing Home Religious Institu Airport Warehouse	ution	18. 19. 20. 21.	Other Govt. Auto Service Shopping Ctr. Non-Profit	

How did you first learn about	In square f	In square feet (meters)		
Tornado cleaning and maintenance equipment?	Total Hard Floor Area	Total Carpeted Area Square feet (square meters)		
Contacted by local dealer	0-10,000 <i>(0-930)</i>	☐ 0-10,000 <i>(0-930)</i>		
Previous experience with Tornado products	10-50,000 (930-4,650)	☐ 10-50,000 <i>(930-4,650)</i>		
☐ Reputation/Recommendation ☐ Advertising ☐ Direct mail ☐ Internet ☐ Other	☐ 50-250,000 (4,650-23,250) ☐ Over 250,000 (over 23,250)	50-250,000 (4,650-23,250) Over 250,000 (over 23,250)		

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 7401 W. Lawrence Avenue Chicago, IL 60706 Fax: (708) 867-6968

Todav's Innovative Leader in Cleanina and Maintenance Eauloment