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 **Tornado® Operations & Maintenance Manual**

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MODEL NO.  
98494 Tornado 17" Battery Burnisher

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Long-term buyer protection warranties\*

<b>Tornado Standard Warranty Program</b>	
<p style="text-align: center;">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 Service Department.</p> <p>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.</p>	<p><b>10 Years:</b> All plastic tanks and rotationally-molded bodies</p>
	<p><b>2 Year:</b> On all Tornado components <i>*except as shown below</i></p>
	<p><b>1 Year:</b> Labor on all tornado cleaning equipment <i>*except as shown below</i></p>
	<p><b>1 Year:</b> 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.</p>

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.

- \*Effective January 1st, 2008. 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, PV6 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, chargers, parts, accessories).
  - 3) Warranties on all riding sweepers including the ICC1, KM100/100 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 including the 75/140 & 90/140 are 24 months parts/12 months labor OR 1000 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 or 6 months after the dealer purchased the unit from Tornado, whichever comes first.

Note: Tornado, The Latest Dirt, 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

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## **General Information**

This commercial battery powered Cordless Burnisher is the latest innovation at the forefront of daytime cleaning. Its quietness of operation and compact design makes it ideal for use in a variety of environments. It is especially suited for use on hard floors in hotels, schools, hospitals, factories, retail shops, stores and offices.

Maintenance free (gel) batteries must be used which provide up to 2 hours running time. A battery life indicator allows the operator to assess the degree of battery life available. An on board battery charger provides a convenient way of charging. The machine can be fitted with an optional handle mounted cleaning solution spray system, which can be operated while gripping the handle with both hands, maintaining full control of the machine.

The following instructions contain important information about the Tornado Cordless Burnisher and safety advice for the operator.

Equipment must be operated, serviced and maintained in accordance with the manufacturer's instructions. If in doubt, contact the supplier of your machine.

### **Important Safety Advice**

When using electrical equipment, basic safety precautions should be followed including the following:

- Read all instructions carefully before use.
- Keep children and unauthorized persons away from the machine when in use.
- Do not leave the key in the switch when not in use.
- Do not operate the machine if it malfunctions or is damaged in any way. Contact an authorized service agent for repair or adjustment.
- Do not operate the machine when connected to the electrical supply.
- The key of the operating switch must be removed before cleaning or doing maintenance on the machine.
- To unplug, pull the plug and not the cord.
- The battery charging lead needs to be regularly inspected for signs of damage. If the lead is damaged, it has to be replaced.
- When recharging, make sure the area is ventilated.
- Do not use where hazardous dust is present.
- Do not use in near flammable areas.
- Be careful when using the machine near stairways.

### **Guidelines for the Operator**

- Operators must be fully trained in the use of the machine in accordance with these instructions, able to perform user maintenance and the correct selection of accessories.
- Operators should be physically capable to move, transport and operate the machine.
- Operators should be able to recognize unusual operation of the machine and report any problems.
- Keep hands and feet clear of the rotating pad.
- Wear suitable footwear and clothing.
- Where possible, implement job rotation and adequate rest periods for the operator(s).
- Do not smoke when using the machine.
- This machine is for indoor use only. Do not store outdoors or in wet areas.

## Transporting the Machine

CAUTION – THIS MACHINE IS HEAVY

- Do not attempt to lift the machine without mechanical assistance.
- Do not lift the machine by the operating handle or outer cover, always lift from the chassis.
- Use a mechanical lift, hoist or forklift and ensure the machine is securely in place before lifting. Incorrect lifting techniques may result in injury.
- To move the machine to the work area, lock the handle and tilt backwards to raise the front off the floor, and wheel into position.

CAUTION – BUMPING THE MACHINE THROUGH OBSTACLES CAN DAMAGE THE MACHINE. SMALL OBSTACLES CAN BE OVERCOME BY PULLING THE MACHINE BACKWARDS.

## Electrical Connection

- Before connecting the machine to the power supply, check that your supply voltage corresponds with that marked on the rating label.

IMPORTANT – IF THE CHARGING LEAD IS DAMAGED, IT MUST BE REPLACED BY A CORD PROVIDED ONLY BY THE MANUFACTURER OR AN AUTHORIZED SERVICE AGENT.

## Controls

The main operating controls are located on the handle.

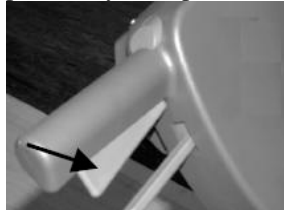
### Switch Trigger, left hand

Used to switch motor ON and OFF. Can only be operated with handle in working position, and if left hand interlock button has previously been pressed.



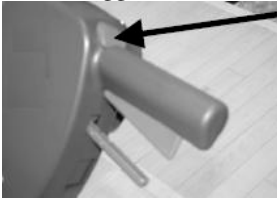
### Switch Trigger, right hand

Used to switch motor ON and OFF. Can only be operated with handle in working position, and if right hand interlock button has previously been pressed.



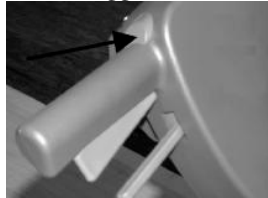
### Interlock Button, left hand

This must be pressed initially to enable left hand switch trigger to switch the motor on.



### Interlock Button, right hand

This must be pressed to enable right hand switch trigger to switch the motor on.



### Handle Adjustment Lever

Used to adjust handle to comfortable working height. Note: For safety Reasons the machine cannot be operated unless the handle is moved to a working height.



### Battery Life Indicator

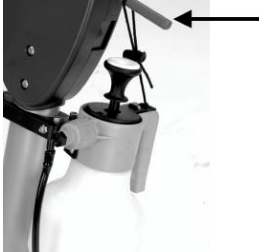
Gives indication of battery life available.



### Solution Feed Lever

Operates flow valve in spray bottle (if fitted).

- Pull lever to release solution.
- Release lever to stop flow.



### Battery Charge Indicator Lights

Shows charge state of battery.



### Key Operated Switch

Switches battery power ON and OFF.



### Battery Charging Lead

Connects machine to electricity supply for battery charging.



### Fitting the Pads

**WARNING – THIS APPLIANCE HAS BEEN DESIGNED FOR USE WITH QUALITY BURNISHING PADS ONLY. THE FITTING OF INAPPROPRIATE PADS MAY AFFECT ITS PERFORMANCE AND SAFETY.**

Make sure the machine is switched OFF by the key operated switch and the key is removed before fitting or removing pads.

**CAUTION – IF SPRAY BOTTLE IS FITTED, LOWER THE HANDLE GENTLY TO AVOID DAMAGING IT.**

- Raise cleaning head bringing the machine to rest on storage castor.
- Remove pad retainer by unscrewing it.
- Press cleaning pad onto the drive board. Secure the pad using the pad retainer.
- Return the machine to upright position.

### **Adjusting the Handle Height**

Select the most comfortable handle height using the adjustment lever and lock into position.

## **Operation**

### **Starting the Machine**

**WARNING – NEVER START THE MACHINE WITHOUT A PAD FITTED.**

- Turn the key operated switch to the ON position.
- With the handle set at a comfortable working height and with both left and right hands on the handle, press both interlock buttons with your thumb and squeeze both switch triggers to start the machine.
- Once the machine has started, the interlock buttons can be released. The machine will operate with either or both of the switch triggers held.
- To stop the machine, release the switch triggers.
- Normal movement of the machine is in a forward and backward position.

### **Burnishing**

- Fit pads suitable for the speed of the machine and the surface to be polished, as recommended by the pad manufacturer.
- Apply cleaning solution to the floor in accordance with the manufacturer's instructions.
- Do not keep the machine rotating on one spot, as this could cause overheating and damage the floor surface.

### **Cleaning Solutions**

The choice of cleaning solution is at the discretion of the operator, when assessing the surface to be cleaned. Cleaning solutions are only recommended for stubborn marks and should not be used as a general cleaning aid.

### **When Cleaning is Finished**

- Switch OFF the machine, raise cleaning head and remove pad.
- Wipe over the machine with a damp cloth.
- Check battery life indicator and recharge as necessary.

### **Recharging the Batteries**

- **IMPORTANT** - Only recharge the battery when the battery life indicator is in the red zone (two lights remaining).
- Note that when only 1 RED LED is showing on the battery life indicator the internal controller will disable the machine.
- **IMPORTANT** – Opportunity top up charging will damage the batteries. This will cause run time to fall and overall battery life will be affected. **AVOID TOP UP CHARGING.**
- Take the battery charging lead supplied with the machine plug into the main supply, ensure that the supply matches the rating plate.
- It takes approximately 8 hours to fully charge the batteries.

Battery Charge Indicator Lights:

- Two RED LEDs – The first indicates that the power is on and the second indicates that the initial bulk charge is taking place.
- YELLOW LED – indicates that the battery is now being charged on a constant voltage and that the battery is about 80% charged.
- GREEN LED – shows when the charger has switched over to float charge and that the battery is ready for use. The battery should be left connected with a GREEN LED lit until the battery is required for use.
- **IMPORTANT** – CHARGE ONLY IN A WELL-VENTILATED AREA.
- **THE CHARGER IS SET FOR GEL BATTERIES ONLY.**
- **DO NOT OPERATE THE MACHINE WHEN CONNECTED TO THE MAIN ELECTRICAL SUPPLY.**

## Storage

Always switch off and wipe down and dry the machine after use. Store the machine in a dry indoor area only.

## Maintenance

**WARNING – BEFORE DOING ANY MAINTENANCE OPERATIONS OR ADJUSTMENTS, SWITCH OFF THE MACHINE AND UNPLUG IT FROM THE ELECTRICAL SUPPLY.**

The machine requires minimum maintenance apart from the following checks by a trained operator.

### Charging Cord and Plug

Regularly inspect the sheath, plug and cord for damage or loose connection.

**IMPORTANT –** All other servicing and repairs should only be performed by an authorized service agent.

**IMPORTANT –** Should the machine fail to operate, please refer to the fault diagnosis section in the back of the instruction manual. If the problem or remedy is not listed, please contact an authorized service agent.

## Electrical & Electronic Equipment Disposal

Improper disposal may be harmful to the environment. Please refer to your local waste authority for information on return and collection systems in your area.

## Technical Specification

Charging Voltage	100-230V
Voltage	24V
Motor Rating	65HP
Working Width	17 inches
Pad Diameter	17 inches
Pad Speed	1500 rpm
Handle Height	42 inches
Sound Pressure Level	57 dB (A)
Weight (with batteries)	138 lbs.
Weight (without batteries)	50 lbs.

## Accessories

Part	Part No.	Description
Spray Kit System	05-4156-0000	Spray Cleaning Attachment

## Fault Diagnosis

Fault	Reason	Remedy
No lights are lit on charger module.	Power failure	Check the main fuse, the power supply cord and plug.
Only Red LED on charge module is lit.	Charger not connected correctly	Contact service agent
Machine not working.	Switch interlock incorrectly operated. Current overload fuse blown	Check operating procedure instructions. Contact service agent
Machine wobbles or vibrates excessively.	Pad worn or damaged Pad centered on drive disc Pad dirty Incorrect pad selection	Renew pad Place pad in correct position Clean the pad Contact pad supplier