



TORRENT WATER-BASED PARTSWASHER SYSTEM

MODEL 400

*UK, IRELAND, AUSTRALIA, US/
Original instruction.
Version 6, updated September 2011*

TABLE OF CONTENTS

1. INTRODUCTION	3
2. SYMBOLS USED	3
3. DESIGNATION OF MANUFACTURER AND MACHINERY.....	4
4. EC DECLARATION OF CONFORMITY	4
5. GENERAL DESCRIPTION OF THE MACHINERY	5
6. SAFETY INSTRUCTIONS.....	8
7. INSTALLATION	11
8. INSTRUCTIONS FOR USE	16
9. MAINTENANCE OF THE MACHINE.....	18
10. TROUBLESHOOTING.....	19
11. SPECIFICATIONS.....	20

1. INTRODUCTION

The purpose of this manual is to provide important information concerning the **Torrent** parts washer system to ensure safe use of the equipment.



Before working with the machine, please read these instructions, as well as the information sheet and labels of the chemical supplies necessary for use of the Torrent. This instruction manual should be placed near the machine.

NOTE: Attempting to operate this equipment without reading this manual will likely cause the equipment to fail and may void your warranty.

2. SYMBOLS USED

NOTE: The **NOTE** Symbol refers to instructions regarding the equipment. Failure to follow them could damage the equipment or affect its ability to operate properly.



The **Safety Alert Symbol** gives notice of general danger. You must be attentive and alert, for your safety is involved.



CAUTION: Gives notice of general danger. Omission of given procedure could end in personal injury or damage of property.



WARNING: Gives notice of general danger. Omission of given procedure could end in serious personal injury or death.



DANGER: Gives notice of general danger. Omission of given procedure **WILL** end in personal injury or death.



Gives notice of danger of injury by electricity.



Gives notice of operator's duty to switch off electricity before carrying out certain action.



Gives notice of operator's duty to wear protective gloves.



Gives notice of operator's duty to look up appropriate information in the instruction manual before using the machine.

3. DESIGNATION OF MANUFACTURER AND MACHINERY

Manufacturer:

NCH (UK) Ltd.
NCH House
Springvale Ave.
Bilston, WV14 0QL
United Kingdom

Represented by:

UK: Same as manufacturer
Ireland: NCH Ireland Ltd, The Brewery Business Park, Ardee Road,
Dundalk, County Louth., Ireland
Australia: NCH Australia, 5-9 Ralph Street, Alexandria NSW 2015
USA: NCH Corporation, 2727 Chemsearch Blvd., Irving, TX 75062

Designation of machinery:

Torrent water-based parts washer system
Model 400



4. EC DECLARATION OF CONFORMITY

We, NCH (UK) Ltd. of NCH House, Springvale Ave, Bilston, WV14 0QL, UK, along with Stephan Westcott as the person authorised to compile the technical file, declare that the design of our product:

Torrent water-based parts washer system, Model 400

complies with the relevant provisions of:

- EC Machinery Directive 2006/42/EC
- EC Low Voltage Directive 2006/95/EC

Applied harmonised standards:

- EN ISO 14121-1:2007
- EN 60204-1:2006
- EN 982:1996

This declaration becomes invalid in the case of incorrect use and product modifications which were not agreed with the manufacturer.

Bilston, October 12, 2010



Altaf Kara
Vice President, Regional General Counsel

5. GENERAL DESCRIPTION OF THE MACHINERY

The **Torrent** is a water-based manual parts washer system that combines the joint action of water pressure, temperature and degreasing agents to clean and degrease parts and components of machinery.

The Parts washer is designed for cleaning and degreasing small parts in industrial maintenance and automotive workshops. Do not use the machine for a different purpose than indicated.

NOTE: With the **Torrent**, use only **Storm**, a specially formulated aqueous cleaning solution, developed specifically for parts cleaning and degreasing. Use only degreasing agents recommended and approved by the manufacturer.

The sink at the upper half of the machine is the area in which parts are to be washed. A movable nozzle at the end of a hose is activated via a foot switch, and allows the user to direct the high-pressure, water-based cleaning agent towards the part(s) to be washed. A second hand-activated air blower releases a jet of compressed air and is intended for the drying of cleaned parts. A light in the upper internal part of the sink allows for better visibility by the user during operation. An air knife blows compressed air across the window while the pump is activated, also allowing for better visibility by the operator.

A lid over the sink can be opened or closed manually, thus protecting the user from the pressurized water-based cleaning agent, the compressed air, and any solid or liquid projections during use. This lid must be closed before activating the nozzle or the air blower and while operating the machine.

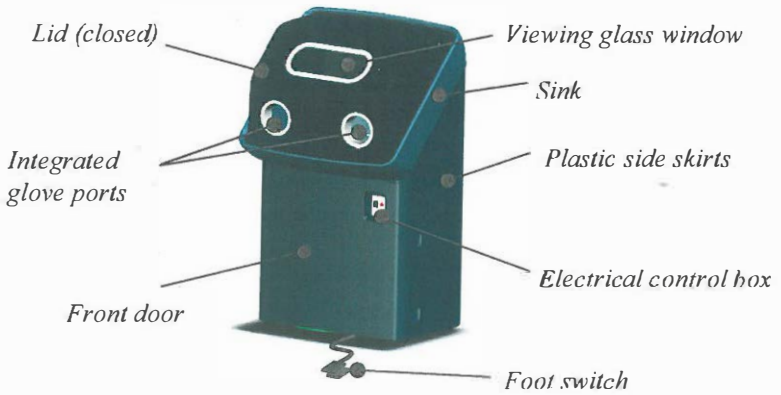
The lid has a viewing glass window to allow proper visibility during use of the nozzle or air blower, and two integrated gloves on their respective ports, which allow the handling of the nozzle or air blower and the parts to be cleaned and protect the user's hands from the cleaning agent and other waste. In order to avoid the accumulation of dirt in the internal side of the gloves over time and to ensure good hygiene, the user must wear additional single-use gloves (liners) before placing his hands through the glove ports.

The bottom half of the machine is confined within a metal frame surrounded by plastic skirts and a front door. A metal drum in this bottom half contains the water-based cleaning agent and a heating device. The heater is automatic and will cycle with the thermostat whenever there is power applied to the machine and the drum is connected to the machine. Waste generated during the cleaning of parts is drained to the drum and re-circulated in the system. Specific servicing is required at variable time intervals to ensure and maintain the properties of the cleaning agent. This service should always be performed by the manufacturer's personnel or personnel with explicit authorization from the manufacturer. Use only degreasing agents recommended and approved by the company.

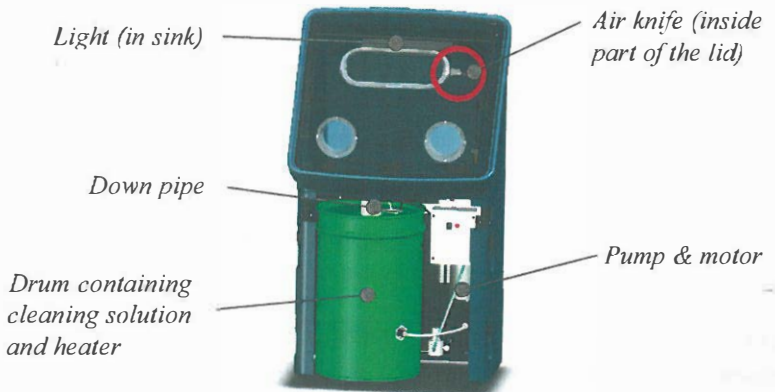
An external pump, also in the bottom half of the machine, is connected to the drum via a flexible hose. It provides the necessary pressure to the cleaning agent, and sends it up to the nozzle in the sink.

An electrical control box allows the power supply to the different elements of the system. The light inside the sink is switched on via an "on-off" switch located at the front of the machine, on its lower right side, and next to a green power-indication light. This switch only controls the light inside the sink, and does not control the overall power supply to the machine. The mains disconnect is provided by the mains plug, which must always be within easy reach of the operator.

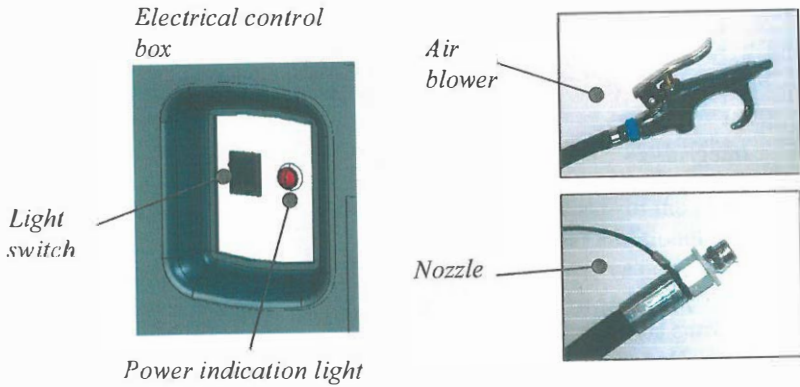
Torrent (external components)



Torrent (internal components)



Torrent (detail)



6. SAFETY INSTRUCTIONS



Read and understand all the safety instructions below before you use or install the Torrent. This manual should be kept so that it can be used in the future, either for training of new users or for consultation of regular or occasional users.



If you feel the equipment has been damaged or is in an unsafe condition, inform your supervisor and wait until the issue is resolved before using the equipment. If necessary, contact the manufacturer or an authorized representative in order to repair the damage.



WARNING: Check the power supply cords of this appliance at regular intervals for damage. If the supply cords are found to be damaged, contact the manufacturer or an authorized representative in order to repair the damage.



WARNING: This machine must be connected to a properly grounded, single phase and neutral power supply. Check the label on the electrical box (front of the machine, under the light switch) to ensure the correct voltage and protection has been provided. Before carrying out any work on electrical equipment, ensure the machine is isolated from the electrical supply.



CAUTION: The heating element in the drum and thermostat may be damaged and/or damage the drum if functioning when the drum is empty, potentially resulting in severe overheating. Check regularly the level and

clarity of cleaning solution in the drum to ensure the heating element is submerged. Do not use the machine when the buzzer sounds.



CAUTION: Never heat the cleaning agent by other means than the machine's installed heater within the drum.

NOTE: Operation of the pump while dry will cause damage to the pump. Do not run the pump dry. Running the pump dry even for relatively short periods of time (e.g. 30 seconds) can cause overheating and will harm the pump. Check regularly the level of cleaning solution in the drum to ensure the pump is not running dry.

NOTE: Rapid and continuous activation and deactivation of the pump will cause damage to the machine. Do not operate the machine by rapid and continuous activation and deactivation of the pump.

NOTE: Solid particles in the pump will cause damage to the pump. Do not allow solid waste to go into the drum. Keep motor and pump free of all dirt or contaminants, and clean at all times.



WARNING: Several parameters on the Torrent (e.g. thermostat) have been pre-set and must never be modified or tampered with. The machine has been designed and manufactured to operate at 22 bar (320 PSI) using a standard Torrent nozzle. Never attempt to use a non-Torrent nozzle, as this could cause the machine to operate at an unsafe pressure.



WARNING: Prevent any liquids from being spilled onto or making contact with the motor or the machine's electrical parts: this would create a risk of electric shock hazard.



CAUTION: Install and use the machine in a ventilated area, free of flammable liquids or gases.



CAUTION: Depending on frequency and type of use, the floor around the Torrent could become slippery. It is therefore mandatory to assess the need for anti-slip mats around the machine.



WARNING: Do not operate any electrical equipment inside the unit. Do not use the machine near sparks, a flame or fire source, or any other source of heat.



DANGER: Do not contaminate cleaning solution with any flammable material. Make sure parts to be cleaned are free of any flammable material before placing them in the sink, and drain if necessary. Do not add solvents

or liquids, e.g. paint thinners, petrol, hydrocarbon solvents or chlorinated solvents.



CAUTION: Always close the lid before operation. Never attempt to operate the Torrent with the lid open. Before closing, make sure that air blower, water nozzle and hoses are fully inside the sink, and will not be caught in the closing mechanism. Never attempt to open the lid when foot switch is activated. Never direct water spray towards the viewing glass.



WARNING: Never use the air blower with the lid open. Only use it with the lid down, which provides a protective viewing window and gloves.



CAUTION: To protect users from radiated heat and moving parts, never operate the Torrent without the front door in place.



CAUTION: Always leave the lid open when the machine is not actively in use. This will prevent the pump from switching on if the foot switch is unintentionally activated, potentially startling a person.



CAUTION: To stay below the exposure action value for hand-arm vibration exposure, no single user should operate the Torrent's pump for more than 1 hour (total combined time) in any working day.



WARNING: Risk of injury to hands and arms. Never open or close the lid when other people are within a 1 metre (3 feet) radius of the machine. Always use two hands to open and close the lid.



Do not use the machine if the sink or the lid are broken or present leaks.



CAUTION: Follow all directions of use for the recommended detergent. Cleaning solutions may cause irritation on eyes and skin. If detergent reaches the eye, wash thoroughly with water, consult the Material Safety Data Sheet (MSDS) of the detergent, and contact a physician. If the operator's clothes are splashed or wet by the cleaning solution, remove them promptly and thoroughly wash skin or body parts that have been affected or have come into contact with the cleaning agent. Do not keep detergent wet clothing in contact with skin. Always wear appropriate safety clothing and protective equipment when introducing or removing a part from the sink.



CAUTION: Firmly hold both the nozzle or air blower and the part to be washed before allowing the flow of water or air. If you drop the water nozzle or have not held it properly, stop the operation of the pump immediately. Do not direct water or air jets directly on the gloves, your hands or any other area but the parts to be cleaned.



Do not lay heavy objects on the sink's tray or lean heavy objects against the machine in a way that would compromise its stability.



WARNING: When disconnecting the mains, never yank the cord to pull the plug from the outlet. Grasp the plug and pull to disconnect.

For increased safety, this machine is fitted with a lid closed interlock switch, low liquid level limit switch and an RCD / GFCI (Residual Current Device / Ground Fault Circuit Interrupter) on the mains cable.



WARNING: DO NOT ATTEMPT TO OVERRIDE THESE SAFETY FEATURES.



DANGER: It is unconditionally forbidden to interfere in the construction of this machine in any way.



CAUTION: Isolate electrical supply before opening electrical control panel

7. INSTALLATION

Installation of the machine should only be performed by manufacturer's personnel or personnel with appropriate authorization from the manufacturer.



CAUTION: The **Torrent** parts washer should be placed on a horizontal and level surface in a ventilated area, free of flammable liquids or gases. Once installed, do not move or transport the machine without the supervision of manufacturer's personnel or an authorized representative.

Before proceeding with the installation, please check that the following pre-requirements are met at the location of the machine:

- Enough space to install and operate the machine. A surface of 1 x 1 metres (3 x 3 feet) should be appropriate for most cases. Height should be no less than 2.40 metres (7.9 feet).
- A properly grounded, 115 or 230V AC (depending on unit configuration), 13-16 AMP, single phase and neutral power supply. Check the label on the electrical box (front of the machine, under the light switch), to ensure the correct voltage and protection has been provided. The power supply must be located in the installation area and within reach of the Torrent's approx. 2 metre (6.5 feet) long power cord. When fully installed, the mains plug must be within easy reach of the operator.

- A 300 l/min (10cfm), 6 to 10 bar (90 to 145 PSI) dry and oil-free compressed air intake that can be directly plugged into the machine. This airline should be from a secondary airline source, and not a primary lead used for other tools or equipment.

If these requirements are not met, the installation cannot be completed.

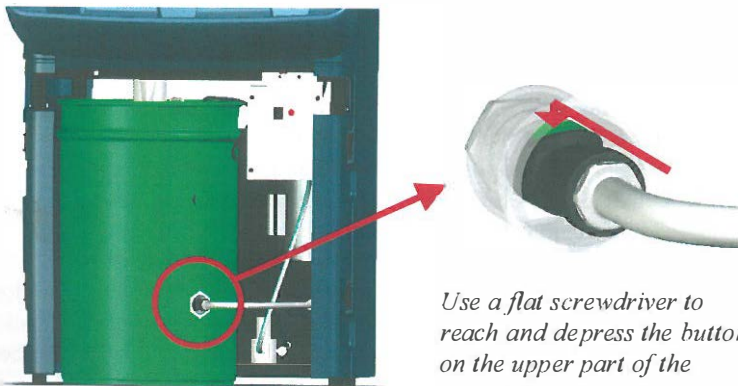
Placing the machine

Remove the banding around the box, and cut or slide the box off of the top of the unit. Be careful not to damage the unit if cutting the box.

Remove the drum to facilitate the placing of the machine. To do so,

- Once the outer packaging has been removed, remove the front panel from the machine.
- Cut the packing tape that secures the drum.
- Open the lid: grasp the lid at the top of the glove ports, and slightly pull towards yourself while lifting up. Take out any spare parts, components or boxes on the sink tray. Remove the metal tray. Lift the filter and down tube out of the machine. (The sink tray, filter and down tube will be put back into place during the drum fill operation.)
- Unplug the hose from the drum, by depressing the button on the upper part of the connection of hose and drum. A flat screwdriver is required to access the button
- Slide the drum out from under the machine.

Unplugging the hose from the drum



Use a flat screwdriver to reach and depress the button on the upper part of the connection

Place the machine in a location that meets the space, power and compressed air pre-requirements above, and away from footpaths and moving vehicles. It is advised that you avoid locations near offices or work desks, given that the Torrent's pump will make noise while in use.

Make the airline connection before sliding the machine against a wall, should this be its final position. Ensure that the mains plug will be easily accessed once the machine is in its final position, as this provides the mains disconnect for the machine.



Connecting the power (electrical) and air supplies

Electrical hookup:

- Connect the machine to a 115 or 230V AC (depending on unit configuration), 13-16 AMP protected, single phase and neutral power supply. Check the label on the electrical box (front of the machine, under the light switch), to confirm the correct voltage for this machine. This appliance must be earthed.
- Plug the RCD / GFCI (residual current device / ground fault circuit interrupter) into the outlet and press the reset button. On some models, the reset button must be pressed each time the RCD is removed from the power supply or the power supply is interrupted.
- The power indication light on the front of machine should illuminate at this point and the equipment light inside the machine will work when the light switch is toggled.

Airline hookup:

- Verify and use the appropriate air fitting for your airline supply.
- Install the male airline fitting into the back of the machine using sealing tape or suitable pipe sealant. Do not over use the pipe sealant.
- Connect a suitable airline source to the machine. Do not remove this connection, as the machine will not function properly without the air.
- Once the airline is connected, close the lid and check for airflow through the air blower inside the machine.
- If air pressure is missing or insufficient, check the connection for any leaks.

Once electrical and airline connections are performed, you may place the machine in its final position. In any case, always leave at least 350mm (14 inches) of clearance at the rear of the machine.

If necessary, proceed to leveling the machine by adjusting the back left leveling leg with an adjustable spanner until the machine is stable. Once leveled, tighten the nut to the base of the leg to lock the bolt into position.



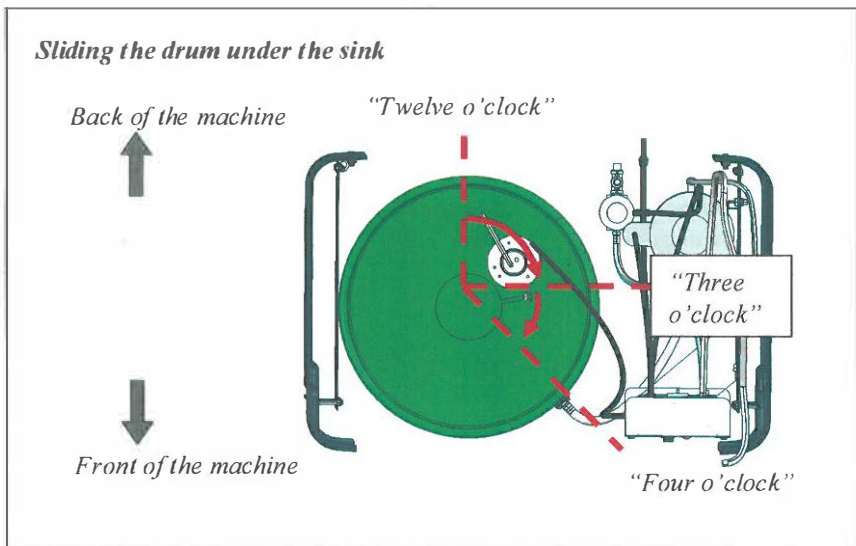
Filling the drum

Always wear protective clothing, gloves, and goggles before working or filling the drum with detergent.

Prior to filling the drum with water, remove the protection around the float switch (inside the drum) and the plug, then plug the drum connector into the electrical outlet on the side of the electrical box, and confirm that the low water buzzer is functioning properly. Do not add detergent to the drum until it has been filled with water.

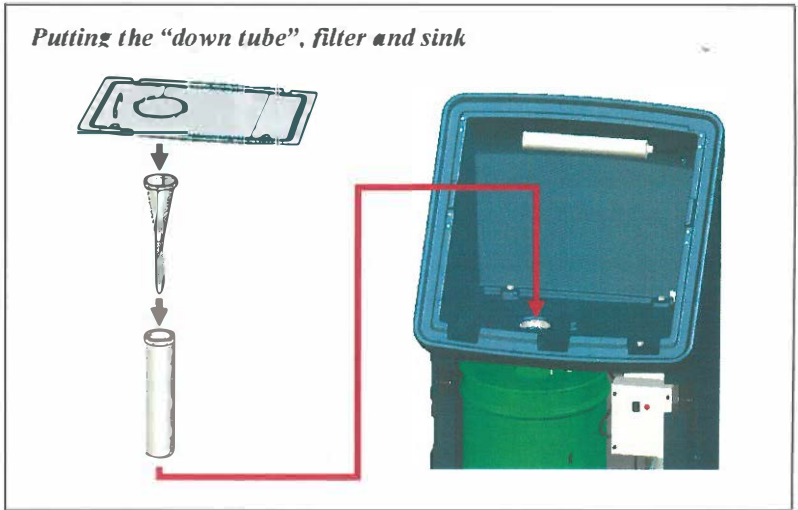
Place the drum near the front of the machine and fill with 100 litres (26 US gallons) of water. Do not overfill the drum.

Slide the drum into place below the sink, paying attention not to hurt the drum's drain valve. Make sure the drum is properly oriented: standing in front of the sink and looking down, the water drain valve and pump suction outlet should be at the 4 o'clock position. The slot on drum's lid should be at the 3 o'clock position (the lid's cord should fall into a loop before reaching the plug). Then connect the pump hose.



Place the “down tube” in the bottom of the sink and align the drum under the sink. The down tube should drop smoothly into the drum opening. Empty the contents of the Storm base (2.5 litres) and the contents of the Storm activator (1 litre) into the drum through the drain tube.

Put the filter and sink tray back into place.

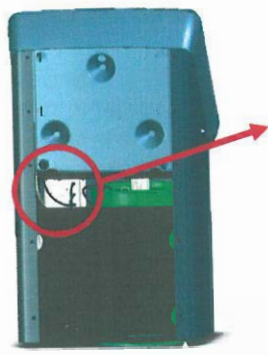


Installing the foot switch

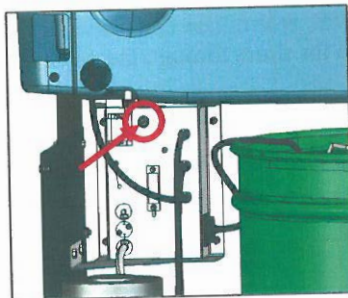
Reach in from the back of the machine and locate the recessed barb fitting for the foot switch. Push the end of the foot switch hose into the barb fitting approximately 1cm (1/2 inch). Ensure the foot pedal is on a level surface.

Make sure you are not depressing the foot switch as you connect the tube as this will make it inoperative.

Plugging the foot switch into the recessed barb fitting



Back of the machine



Push the end of the foot switch hose into the barb fitting approximately 1cm (1/2 inch).

Placing the glove holder

Place a box of nitrile gloves in the “Dracula” holder. Clean the top of the machine with a clean dry cloth. Remove the tape backing from the Dracula. Center the Dracula on top of the lid with the Dracula handle facing forward. Press down on the Dracula to ensure it is bonded to the sink top.

Testing the equipment after installation

Test the light & switch: turn on the switch and ensure light is operating.

Close the lid, place your hands through the glove ports and firmly grasp the wash nozzle. Depress the foot switch to ensure the pump is operating.

Ensure the air knife is operating, and sufficient air is flowing through the air knife to keep spray from collecting on the glass.

If necessary, refer to Chapter 8 - Instructions of use, to see how the nozzle and air blower are activated.

8. INSTRUCTIONS FOR USE



WARNING: The machine should be installed and used in a ventilated area, free of flammable liquids or gases.

The cleaning agent must be at a specific temperature (45°C / 113°F) to allow for optimum cleaning power. To reach this temperature, switch the machine

on and allow for 2 hours (230V machine) or 4 hours (115V machine) before actual parts cleaning.



CAUTION: Never heat the cleaning agent by other means than the machine's installed heater within the drum.



CAUTION: To prevent cross contamination, always wear a pair of glove liners before inserting hands into the fixed gloves on the machine.

To clean a part:

1. Open the lid: grasp the lid at the top of the glove ports, and slightly pull towards yourself while lifting up.
2. Place parts onto bottom tray (max weight of parts should be 50kg / 110 lbs).
3. Close the lid, paying attention not to trap the part to be cleaned, the hoses, the nozzle, the air blower, or the integrated gloves between the lid and the sink, or in the lid's opening mechanism.
4. Cover your hands with single-use gloves (liners), to prevent dirt from accumulating in the inside of the machine's integrated gloves and also to maintain good hygiene.
5. Place arms through glove ports.
6. Firmly hold the nozzle with one hand and the part to be cleaned with the other hand, to avoid uncontrolled movement provoked by water pressure or compressed air.
7. Press the foot switch to allow the flow of pressurized water and cleaning agent through the water nozzle. Proceed to clean the part, by directing the jet towards its greasy and/or dirty sections
8. Once finished dry up the part with the air blower (valve is integrated in the blower).
9. Make sure the foot switch is not pressed, remove the hands from the integrated gloves, dispose of the single-use gloves, and open the lid.
10. Remove the clean parts, and wipe down if necessary.



CAUTION: To prevent a slip hazard, always make sure a cleaned part is dry and drip-free before unloading it.

Always leave the machine with the lid in the open position.

Switch off the light when not in use.

Disconnect the mains if the machine is going to be unattended for more than 24 hours.

9. MAINTENANCE OF THE MACHINE

In order to avoid the accumulation of dirt in the internal side of the gloves over time, wear additional single-use gloves (liners) before introducing your hands in the integrated gloves.



WARNING: Before performing any maintenance on the machine, make sure it is disconnected from the power supply. Maintenance and repair interventions on the machine are to be performed by manufacturer's personnel or personnel with appropriate authorization from the manufacturer. Service operator of the machine must have all the knowledge needed for operating the machine. Do not intervene on, tamper on, repair or modify the machine in any way without explicit authorization from the manufacturer. Use only degreasing agents recommended or approved by the company.



Regularly clean the inside of the viewing glass with a clean dry cloth to ensure proper visibility within the sink while operating.



NOTE: To ensure proper functioning of the machine, do not allow solid waste into the drum. Clean the filter in the sink drain regularly, to ensure solid waste is removed, and to avoid water from backing up the drain in the sink. To do so, lift the sink tray and pull the filter. Place the filter and the tray back once cleaned. Use protective gloves to perform this operation.

If the low water level buzzer sounds, add 10 litres (2.5 gallons) of clean water at a time through the sink, until the buzzer switches off. Normally 20 – 30 litres (5 – 7.5 gallons) are required. Once the low water buzzer switches off, do not add any more water. **WARNING:** risk of over-flowing the drum if water is added after the water buzzer switches off.



WARNING: Before changing the drum or its content, or before servicing the Torrent, make sure that the machine is not in operation, the pump and motor are not activated, and that both the heating device and the cleaning agent have cooled down.

In case of repair or maintenance needs, contact the manufacturer or an authorized representative of the manufacturer. This includes, but is not limited to, the need to maintain or change the drum and its content. Service operator of the machine must have all the knowledge needed for operating the machine.

Clarifying process

Use of the machine will cause the cleaning agent to accumulate oil, grease, dirt, and other contaminants. This will require regular maintenance on the

cleaning agent, to separate oil and grease from detergent, and thus extend its usage life.

This maintenance operation (clarifying process) is to be performed only by manufacturer's personnel or personnel with appropriate authorization from the manufacturer.

During the clarifying process, contaminants are released from the cleaning solution, and removed from the drum. Additional water and detergent is added as required, to ensure that the aqueous solution maintains its cleaning properties.

10. TROUBLESHOOTING

The following is a list of potential issues encountered while using or trying to use the Torrent, and suggested solutions. Should the issue not be resolved, or should you encounter any other issue, please contact an authorised representative of the manufacturer.

Air knife / air blower do not work

Check that compressed air supply is at the specified pressure (300 l/min / 10cfm, 6 to 10 bar / 90 to 145 PSI), the machine is properly connected, and the connection is dry and oil-free.

The lid is closed, but the pump does not work

Make sure nothing blocks the lid from completely being closed (e.g. gloves, hoses, parts), and that proper contact is made along the perimeter of the lid, especially in the reed switch area (upper right corner of the lid).

The machine is plugged in, but light is not on

Check that RCD / GFCI (residual current device / ground fault circuit interrupter) plug has been properly reset. Press reset if necessary. On some models, the reset button must be pressed each time the RCD is removed from the power supply or the power supply is interrupted.

A buzzer sounds inside the machine

Add 10 litres (2.5 gallons) of clean water at a time through the sink, until the buzzer switches off. Normally 20 – 30 litres (5 – 7.5 gallons) are required. Once the low water buzzer switches off, do not add any more water.



Water is backing up the drain in the sink

Clean the main filter in the drain. To do so, lift the sink tray and pull the filter. Place the filter and the tray back once cleaned. Use protective gloves to perform this operation.

11. SPECIFICATIONS

Voltage: (V AC)	115 or 230 Depending on configuration—check label on the electrical box (under light switch) to confirm correct voltage	Max Height (lid open)	2270 mm 89¼ inch
Current Rating: (A)	12.5 (for 115 V units) 9 (for 230 V units)	Min Height (lid closed)	1630 mm 64¼ inch
Immersion Heater: (kW)	1 (for 115 V units) 2 (for 230 V units)	Sink Dimensions (HxWxD, lid closed)	590-640 x 660 x 460 mm 23¼-25¼ x 26 x 18 inch
Pump Motor: (HP)	0.75	Max. Sink Tray Load:	50 Kg 110 lbs
Temperature:	45 - 50°C / 113 - 122°F	Drum fill Capacity:	100 Litre 26.5 US gal
Spraying Pressure:	22 bar (320 PSI)	Operational liquid level – min/max	60 – 100 litre 16 – 26.5 US gal
Air Pressure:	6 - 10 bar (90-145 PSI)	Overall Dimensions (HxWxD)	1630 x 930 x 750 mm 64¼ x 36½ x 29½ inch
Pump Capacity:	7 l/min (1.8 US gal)	Weight:	110 Kg / 242.5 lbs
Degree of Protection:	IP 22	Ambient Temperature:	0° - 40° C 32° - 104° F
A-weighted emission sound pressure at operator's position: 84 dB			
Vibration magnitude when pump is engaged: up to 7 m/s²			
Use only Storm Aqueous Cleaning Solution			