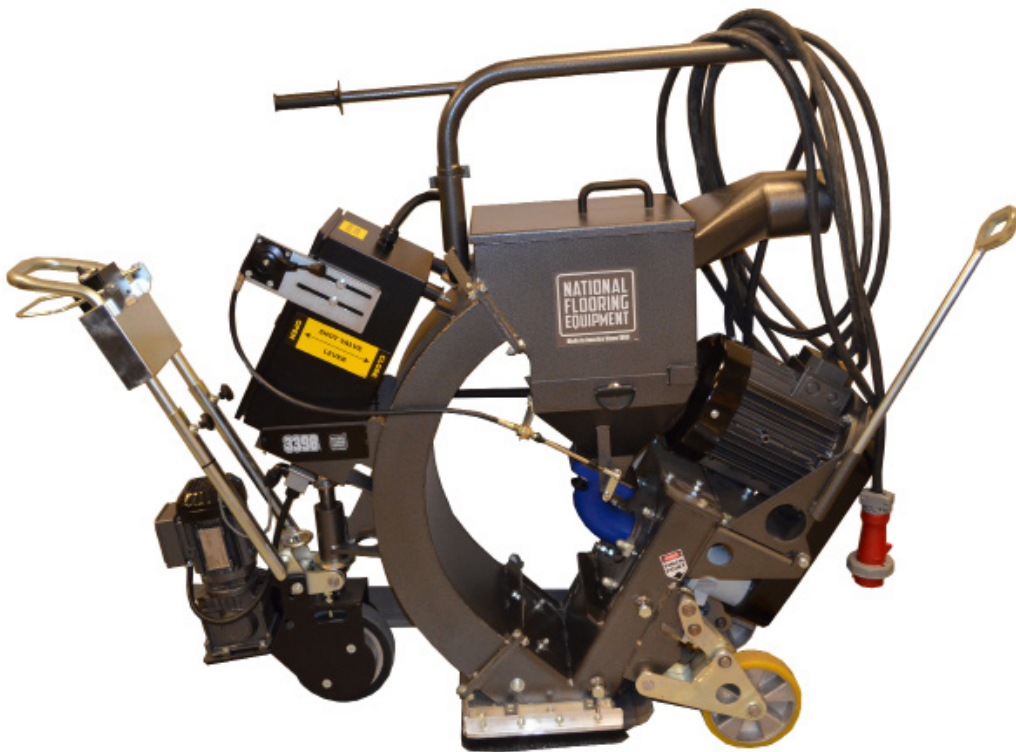


# 3398 SHOT BLASTER

# OPERATING MANUAL



Read Manual Before Operating Machine

402308 Rev B



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# Features and Specifications

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Machine: 3398 Shot Blaster  
Manufacturer: National Flooring Equipment (NFE)  
9250 Xylon Ave. N  
Minneapolis, MN 55445

## SPECIFICATIONS

Length	Width	Height	Weight
70.9" (1800 mm)	17.7" (450 mm)	39.4" (1000 mm)	705.5 lbs (320 kg)

**Power:** 15 HP (12 kW)

**Electrical Connection:** 480VAC, 60 Hz, 3 Ph, 30A IEC 60309 4-PIN Plug

**Working Width:** 12.6" (320 mm)

**Drive:** Progressively adjustable 0-980-30 m/min

**Blasting Capacity:** Up to 2200 ft<sup>2</sup>/h (200 m<sup>2</sup>/h)

**Abrasive Consumption:** ~100 g/m<sup>2</sup>

**Dust Hose Connection:** 5 in (130 mm)

**Sound Restrictions:** During operation, it may be possible to exceed the acceptable noise level of 85 dB(A). This is dependent on the location and local circumstances. When the noise level is 85 dB(A) or more, the machine operator and anyone near the machine must wear sound-insulated ear protection.

## CORRECT USAGE

This machine is designed to be used on clean, dry, horizontal surfaces without obstacles. The machine cannot be used for other purposes. NFE will not be liable for damages resulting from incorrect usage.

## STANDBY POWER SUPPLY (GENERATOR)

If the machine is operated with the use of a generator, the generator must be operated in accordance with the current VDE directives in order to ensure that all safety devices are functioning and that the risk of damage to electrical components has been eliminated.

## GENERAL RULES FOR SAFE OPERATION

Before use, anyone operating or performing maintenance on this equipment must read and understand this manual, as well as any labels packaged with or attached to the machine and its components. Read the manual carefully to learn equipment applications and limitations, as well as potential hazards associated with this type of equipment. Keep manual near machine at all times. If your manual is lost or damaged, contact National Flooring Equipment (NFE) for a replacement.

### Personal

#### Dress properly and use safety gear.

Do not wear loose clothing; it may be caught in moving parts. Anyone in the work area must wear safety goggles or glasses, hearing protection during extended use, and a dust mask for dusty operations. Hard hats, face shields, safety shoes, etc. should be worn when specified or necessary.

#### Maintain control; stay alert.

Keep proper footing and balance, and maintain a firm grip. Observe surroundings at all times and use common sense. Do not use when tired, distracted, or under the influence of drugs, alcohol, or any medication that may cause decreased control.

#### Keep hands away from all moving parts and tooling.

Wear gloves when changing tooling. Remove tooling when machine is not in use and/or lower cutting head to the floor.

#### Do not force equipment.

Equipment will perform best at the rate for which it was designed. Excessive force only causes operator fatigue, increased wear, and reduced control.

### Environment

#### Avoid use in dangerous environments.

Do not use in rain, damp or wet locations, or in the presence of explosive atmospheres (gaseous fumes, dust, or flammable materials). Remove materials or debris that may be ignited by sparks. Keep work area tidy and well-lit - a cluttered or dark work area may lead to accidents.

#### Protect others in the work area and be aware of surroundings.

Provide barriers or shields as needed to protect others from debris and machine operation. Children and other bystanders should be kept at a safe distance from the work area to avoid distracting the operator and/or coming into contact with the machine. Operator should be aware of who is around them and their proximity. Support personnel should never stand next to, in front of, or behind the machine while the machine is running. Operator should look behind them before backing up.

#### Guard against electric shock.

Ensure that machine is connected to a properly grounded outlet. Prevent bodily contact with grounded surfaces, e.g. pipes, radiators, ranges, and refrigerators. When scoring or making cuts, always check the work area for hidden wires or pipes.

### Maintenance & Repairs

#### Begin maintenance work only when the machine is shut down, unplugged, and cooled down.

#### Use proper cleaning agents.

Ensure that all cleaning rags are fiber-free; do not use any aggressive cleaning products.

#### Schedule regular maintenance check-ups.

Ensure machine is properly cleaned and serviced. Remove all traces of oil, combustible fuel, or cleaning fluids from the machine and its connections and fittings. Retighten all loose fittings found during maintenance and repair work. Loose or damaged parts should be replaced immediately; use only NFE parts.

#### Do not weld or flame-cut on the machine during repairs, or make changes to machine without authorization from NFE.

### Equipment

#### Use proper parts and accessories.

Only use NFE-approved or recommended parts and accessories. Using any that are not recommended may be hazardous.

#### Ensure accessories are properly installed and maintained.

Do not permanently remove a guard or other safety device when installing an accessory or attachment.

#### Inspect for damaged parts.

Check for misalignment, binding of moving parts, loose fasteners, improper mounting, broken parts, and any other conditions that may affect operation. If abnormal noise or vibration occurs, turn the machine off immediately. Do not use damaged equipment until repaired. Do not use if power switch does not turn machine on and off. For all repairs, insist on only identical NFE replacement parts.

#### Maintain equipment and labels.

Keep handles dry, clean, and free from oil and grease. Keep cutting edges sharp and clean. Follow instructions for lubricating and changing accessories. Motor and switches should be completely enclosed at all times with no exposed wiring. Inspect cord regularly. Labels carry important information; if unreadable or missing, contact NFE for a free replacement.

#### Avoid accidental starting; store idle equipment.

When not in use, ensure that the machine is unplugged; do not turn on before plugging in. Store in a dry, secured place. Remove tooling when storing, and keep away from children.



**CAUTION!** ENSURE PROPER USE OF EXTENSION CORDS. IF AMP DRAW IS HIGHER THAN SHOWN ON TABLE OR CORD IS LONGER THAN 50 FT, SEE AN ELECTRICIAN.

ASSUMPTIONS: 3% ALLOWABLE VOLTAGE DROP, COPPER CONDUCTORS RATED FOR 75°C, 1.25 SAFETY FACTOR, CORD VOLTAGE RATING OF 600VAC, PROPER CORD TYPES (STO, STOW, SOOW).

Amp Draw	Gauge
0-12	14
13-16	12
14-24	10
25-40	8

# Safety

## SHOT BLASTER SAFETY GUIDELINES

Before use, anyone operating this equipment must read and understand these safety instructions.

### Shot Blasting

#### **Beware of hidden obtrusions.**

Watch out for hidden dangers and protrusions in flooring. Do not use on largely uneven surfaces.

#### **Avoid contact with hot shroud.**

Do not touch the shroud without proper hand protection. Both become hot during operation and remain hot after stopping the machine.

#### **Provide barriers, shields, or safety glasses as needed to protect others from debris.**

#### **Use for correct applications.**

Do not force equipment to do heavier duty work than it was made for.

#### **Use a magnetic sweep immediately after blasting.**

Steel shot that is left on the walking surfaces creates a hazard for falling unexpectedly.

### Dust Collection

#### **Turn off machine before working with dust collector.**

Do not switch off or remove the dust collector while the machine is running.

#### **Use with appropriate dust collecting system.**

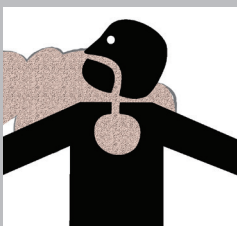
Do not operate machine designed for use with a dust collector without the dust collector. Ensure dust collector is on and operating properly while grinding.

#### **Dispose of collected waste.**

Do not leave the dust collector bag full of waste. Handle and dispose of bag and waste in accordance with all applicable local, state, and federal regulations. The dust bin of a connected dust collector must be emptied before transportation.



**WARNING:** GRINDING/CUTTING/DRILLING OF MASONRY, CONCRETE, METAL AND OTHER MATERIALS CAN GENERATE DUST, MISTS AND FUMES CONTAINING CHEMICALS KNOWN TO CAUSE SERIOUS FATAL INJURY OR ILLNESS, SUCH AS RESPIRATORY DISEASE, CANCER, BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM. IF YOU ARE UNFAMILIAR WITH THE RISKS ASSOCIATED WITH THE PARTICULAR MATERIAL BEING CUT, REVIEW THE MATERIAL SAFETY DATA SHEET AND/OR CONSULT YOU EMPLOYER,



THE MATERIAL MANUFACTURER/SUPPLIER, GOVERNMENTAL AGENCIES SUCH AS OSHA AND NIOSH AND OTHER AUTHORITIES ON HAZARDOUS MATERIALS. CALIFORNIA AND SOME OTHER AUTHORITIES, FOR INSTANCE, HAVE PUBLISHED LISTS OF SUBSTANCES KNOWN TO CAUSE CANCER, REPRODUCTIVE TOXICITY, OR OTHER HARMFUL EFFECTS. CONTROL DUST, MIST AND FUMES AT THE SOURCE WHERE POSSIBLE. IN THIS REGARD USE GOOD WORK PRACTICES AND FOLLOW THE RECOMMENDATIONS OF THE MANUFACTURER/SUPPLIER, OSHA/NIOSH, AND OCCUPATIONAL AND TRADE ASSOCIATIONS. WHEN THE HAZARDS FROM INHALATION OF DUST, MISTS AND FUMES CANNOT BE ELIMINATED, THE OPERATOR AND ANY BYSTANDERS SHOULD ALWAYS WEAR A RESPIRATOR APPROVED BY OSHA/MSHA FOR THE MATERIAL BEING CUT.

# Components and Assembly

## OPERATIVE RANGE

This machine is a downward-blasting machine with a closed abrasive circuit designed for the pre-treatment of horizontal surfaces. The bouncing impact of metallic abrasive onto the surface to be treated thoroughly removes surface contaminants, coats of paint, sealants and thin coatings.

A suitable dust collector must be connected to the machine in order to separate the dust from the abrasive. A specially designed dust collection system ensures dust-free operation of the machine and clean air at the workspace.

## WHEEL KIT

The blast wheel is placed in a side force wheel housing, protected with replaceable wear plates. The blast wheel is driven by an electric motor via a belt drive and is mounted on a bearing unit. The correct rotation of the wheel is counterclockwise.

Outside of the wheel housing is a control cage, which regulates the direction of the abrasive flow. It is held by two clamps that can be adjusted; turning the control cage counterclockwise will move the blast pattern to the right, and turning it clockwise will move the blast pattern to the left.

## SEPARATOR (FIGURE 1)

The separator (1) is mounted to the end of the rebound. The deflector (5) and baffle plate (4) will stop the reflected abrasive. The filter connected to the hose connector (8) will generate an appropriate air flow within the separator so that dust is separated from abrasive. The abrasive drops back to the storage where it must pass through a wire mesh tray (6). This tray is fitted to prevent any coarse contaminants from getting into the blast wheel. The tray can be removed from the side for cleaning purposes.

## TRACTION DRIVE (FIGURE 2)

This machine is driven by a .55 kW electric motor. The power is transmitted via a chain drive; the drive wheel (1) and drive sprocket (5) are not linked directly.

The transmission is built from the traction drive wheel, sprocket, and chain (7). The quick release pin (4) links these parts so that the energy gets to the drive wheel.

**Note:** Parts are only linked after inserting the quick release pin.

## BASE SEALS (FIGURE 3)

On the front and side of the machine are magnetic seals (1) surrounded by brush seals (2). On the rear is a tail-seal (3) which slides over the surface and hinders abrasive from getting out of the blast area.

The correct setting of the magnetic seals is .31-.47" (8-12 mm) over the floor, depending on the application. The adjustment is done by screws on the traction drive and the rear (4).

## ABRASIVE MEDIA

Selection of abrasive is very important. The use of incorrect abrasive increases wear on the machine. Contact NFE customer service regarding the best abrasive to use.

To put abrasive into the machine, complete the following:

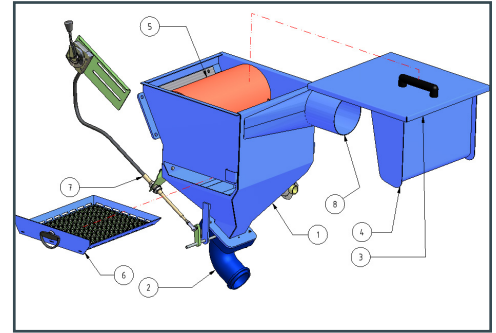


FIG. 1

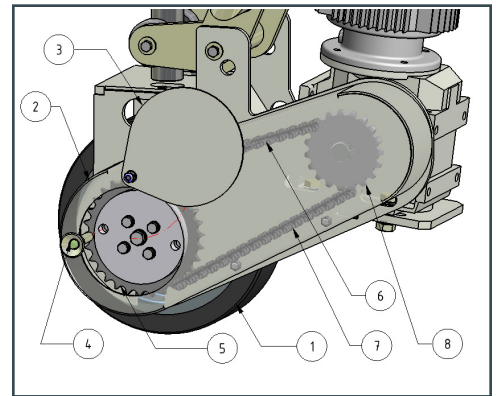


FIG. 2

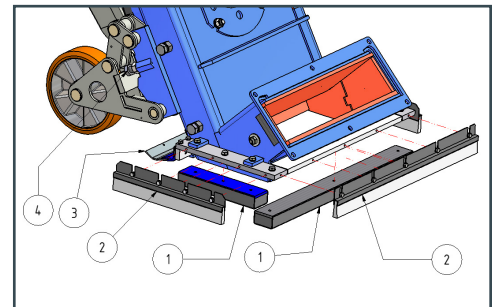


FIG. 3

# Components and Assembly

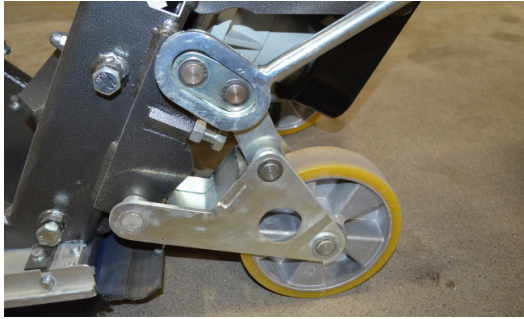


FIG. 4

1. Remove lid from separator.
2. Ensure tray is in place.
3. Fill abrasive, distributed equally, up to the bottom of the mesh on the tray.
4. Check occasional function of the deflector shutter.

## TRANSPORT

### Moving by Vehicle

When transporting the machine with a vehicle, proceed in such a manner that damage due to the effects of use of force or incorrect loading and unloading is avoided. Use at least two straps to tighten the machine to the vehicle. Make sure that all parts of the machine are stationary.

To reduce the height of the machine, slide the handle down by loosening the two screws on the handle. Be sure to re-tighten them again after moving the handle, or they may be lost.

### Moving by Hand

In order to transport the machine from a vehicle to the working area, the machine will need to be lifted up. In order to do so:

1. Use the toggle lever at the rear.
2. Push the lever on the top linkage.
3. Pull the lever until the linkage is touching the bracket (Figure 4).
4. To reverse, pull back the lever in the opposite direction.

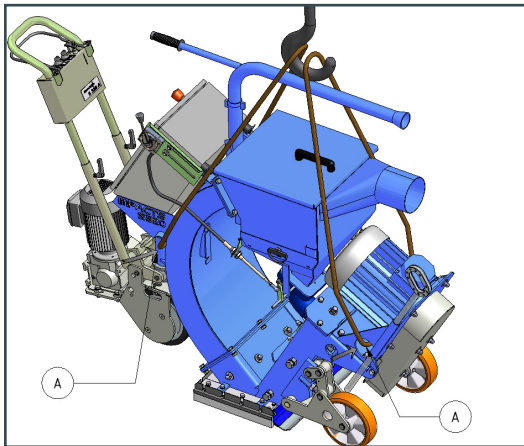


FIG. 5

After the rear toggle lever lift has been set into its upwards position, push down the handle and pull the machine in reverse toward the jobsite.

**Note:** Never push the machine; this could cause damage to the rear seals.

### Hoisting Equipment

When transporting with hoisting equipment like a crane or lift, check the total weight permitted. The weight of the machine can be found in the specifications or on the serial number plate. Use only qualified hoisting equipment, as well as ropes and chains.

**Note:** Do not fix any ropes or chains to the handle; only at the locations shown in Figure 5. Remove all abrasives from the machine before transport.

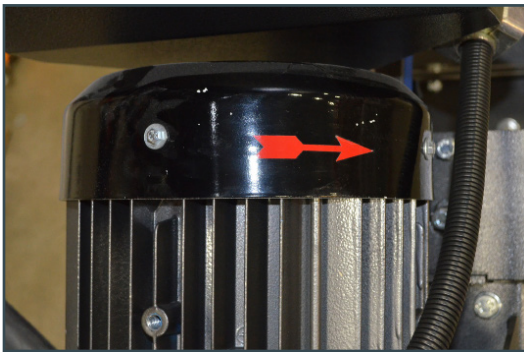


FIG. 6

## VERIFY CORRECT MOTOR DIRECTION

1. Plug the machine into the power source. The green power indicator light should be on.
2. Turn the key to position A on the controller; remove the key.
3. Push the "Start" button; the blast motor should run.
4. Check the motor direction. It should match the red arrow on the blast motor (Figure 6). If the direction is wrong, push the "Stop" button and allow the motor to come to a complete stop. Then, turn the key to position B on the controller and repeat these steps.



# Components and Assembly

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## PREPARING FOR OPERATION

In order to avoid downtimes, a regular inspection is essential. Before start-up, complete the following:

- Ensure all protective housings and hose connections are fitted, and that the dust collector is connected correctly.
- Check that all machine parts are assembled safely and correctly.
- Check that all screws and other fasteners are tight.
- Remove any foreign bodies from the abrasive storage, feed spout, blast wheel parts, electrical connections, motors, etc.
- Check parts for damage and wear; replace if necessary.
- Lubricate wheel bearings of the drive wheel every 100 working hours.
- Empty dust collector container.
- Check the level of abrasive in the storage area; fill if necessary.
- Check that the height adjustment is approx. .31-.47" (8-12 mm) between magnet and surface.
- Surface must be swept for loose parts prior to operation. Ensure that machine can travel over all inequalities on the surface; small inequalities like weld seams or floor joints are not an issue.

**Note:** *Whenever the machine is not used for blast cleaning, the abrasive valve must be closed.*

# Operation



FIG. 7



FIG. 8

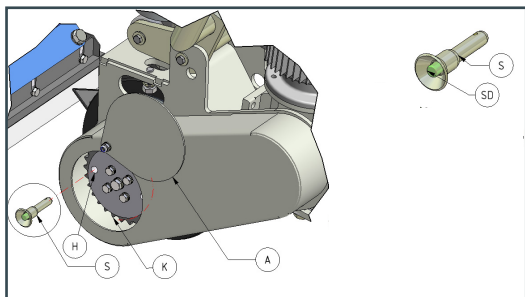


FIG. 9



FIG. 10

## OPERATING ELEMENTS

The control box (Figure 7) contains all controls and instruments used for supervision and operation of the machine.

**Wheel Motor Controls:** Pushing the “Start” button will start the wheel motor. Pushing the “Stop” button will stop the wheel motor.

**Amp Meter:** The Amp meter shows the load consumption of the wheel motor. When switching on the motor, the current value is high (starting current peak); it is approximately 7 Amps for no-load current and a maximum of 21 Amps for the operating current.

**Hour Meter:** Shows the sum of the actual working hours performed by the machine.

**Momentary High Range Button:** This switch bypasses the drive speed control; the machine will move at maximum speed while the button is pressed. If the button is released, the machine reverts back to normal speed.

**Deadman Handle:** This skinnier handle serves for controlling the drive motor. Pushing the handle upwards closes the power circuit used to turn on the drive motor. When the handle is released, the drive motor turns off.

**Speed Control:** The ground speed is set by a potentiometer. Although this indication does not allow a direct reading of the actual speed, it shows comparing numbers allowing the operator to set the appropriate speed.

**Momentary Reverse Button:** This button controls the direction of the machine. When the button is pressed, the machine will move in reverse (the direction for operation). If the button is released, the machine will move forward.

**Abrasive Control Valve and Lever:** There is a magnetic valve that regulates the flow of abrasive to the blast wheel. The valve has a shutter that is controlled by a lever connected to the control cable (Figure 8). Changing the angle of the shutter will result in a different amount of abrasive flowing to the wheel. Do not load more abrasive than recommended; the max. being 21 Amps.

## START-UP PROCEDURE

Start-up steps should occur in the following order:

- **Insert the quick release pin (Figure 9):**
  1. Open the chain guard cover (9.A).
  2. Put the machine into a low ground speed (1-2).
  3. Hold down the button (9.SD) on the quick release pin (9.S) and move the pin into the bore (9.H) of the sprocket hub.
  4. Pull the deadman handle upwards; the sprocket (9.K) will start to turn. Push the quick release pin further inwards, with the button still pressed.
  5. Push pin inwards until the drive is engaged and the machine starts to move. The machine is now driven by the traction drive.
  6. Close the chain guard cover
- **Start the machine:**
  1. Turn on the dust collector.
  2. Check that the magnetic valve on the machine is closed (lever on the side of the control box should be pushed forward).
  3. Press the “Start” button (Figure 10).
  4. Watch the Amp meter to control the load of the wheel motor. During start-

up, the motor will need its starting current until max. speed of the motor is reached.

5. When the motor reaches max. speed, the amperage will drop down to no-load current. **Note:** *If the Amp meter indicates a high load consumption after having reached the idle-run speed, the magnetic valve may be partially open or there may be another issue. Contact NFE customer service if another issue is suspected.*
6. Hold down the “Reverse” button to put the machine in reverse; adjust speed using the ground speed dial (Figure 11).
7. Pull the deadman handle upwards to start up the traction drive. At the same time, pull down the lever on the side of the control box so that the feed valve opens (Figure 8) and abrasive flows towards the blast wheel. **Note:** *Ensure the Amp meter does not exceed 21 Amps.*



FIG. 11



**WARNING:** ABRASIVE FEED VALVE MUST ONLY BE OPENED WHEN THE SHOT BLASTER IS IN FORWARD MOTION. IF THE MACHINE IS AT A STANDSTILL WHEN THE VALVE IS OPENED, DEEP GROOVES WILL BE BLASTED INTO THE CONCRETE SURFACE WITHIN SECONDS.

After using the machine on approx. 3.3-6.6 ft (1-2 m), close the abrasive valve and stop the machine. Check the blasted surface for irregularities and adjust the blast pattern or set a different speed for the machine if needed.



**WARNING:** CLOSE THE FEED VALVE BEFORE ALTERING TRAVEL DIRECTION OF THE MACHINE OR LIFTING THE BLAST HEAD FROM THE FLOOR.

## CHART SPEED

Selecting the correct chart speed for the machine is essential for a good result. The chart speed depends on the material of the surface to be worked and the desired profiling.

The correct chart speed is found by observing the surface after it has been worked and varying the speed during the blast cleaning process.

Slight profiling on concrete requires a higher speed than coarse profiling (6-10). Blasting on steel requires a very low chart speed (1-3).

## RECOMMENDED PATHS

Position the dust collector near a power source, then work away from the dust collector. Carry out operation in a parallel back-and-forth track so that the dust hose and electric cable do not become twisted. Keep an eye on the max. length of the cable and dust hose during operation and re-position if needed.

Once finished, move the dust collector to the surface already worked on and finish the area where the dust collector was located.

## TURNING OFF THE MACHINE

### Shut-Down Procedure

1. Close the feed valve (Figure 8).
2. Keep the traction drive turned on so that the machine continues to move. Ensure the feed valve is fully closed so that no grooves are blasted into the surface.

# Operation

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3. Release the traction drive actuator so that it swings back into its previous position. The traction drive will turn off and the machine will stop.
4. Press the “Stop” button.
5. Switch off the dust collector.

## Storage

When storing the machine for long periods of time, complete the following steps:

1. Turn off the machine.
2. Remove all abrasive from machine and magnets.
3. Clean machine and cover it. Motor, cables, and plugs must be protected against moisture, dust, heat, and shock.
4. Protect bright parts of the machine and power pack with a preservative oil.

# Troubleshooting Guide

Problem	Cause	Solution
Unusual vibrations.	Uneven wear of the blast wheel.	Replace blast wheel set.
	Imbalance due to broken parts or blades.	Check separator and all other sections of the machine. Replace all broken parts.
	Wheel hub is worn out.	Replace wheel hub.
	Drive shaft is bent.	Replace shaft or complete bearing unit.
Unusual noise.	Low clearances or bad adjustments of turning parts.	Check parts adjustments (blast wheel and control cage).
	Loose or lost screws.	Check screws and bolts to ensure correct fit. Tighten where necessary.
	Shrieking wheels.	Apply oil or grease; replace if worn.
	Motor bearings worn.	Replace bearings.
Reduced or no performance.	Insufficient flow of abrasive in front of the blast wheel.	Clean wire mesh.
	Not enough abrasive in storage.	Fill up abrasive.
	Loose valve lever.	Tighten setting screw.
	Valve adjustment needed.	Adjust valve lever and valve disk.
	Too much dust or sand in the circuit.	Check all seals, dust hose, and dust collector to ensure they are sealed properly.
	Blast wheel or control cage are worn.	Replace worn items.
	Belt tension adjustment required.	Check and adjust.
	Valve does not close properly and abrasive is blocking blast wheel when turned on.	Close valve; stop motor, and re-adjust valve.
	Too much abrasive admitted when turned on.	Ensure motor reached max. speed before opening the valve.
	Feed motion is too fast.	Reduce speed.
Losing abrasive.	Bad seals.	Check base seals; re-adjust and replace when worn.
	Elevation adjustment of magnets.	Ensure elevation is not higher than 8 mm.
	Magnets lost field.	Replace magnets.
	Dust collector issues.	Adjust reducing damper.
Insufficient air flow towards dust collector.	Too much dust and other particles in storage.	Check rated performance for the dust collector; check all seals, dust hose, and differential pressure and replace if needed.
Motor does not start.	Missing phase.	Check power supply.
	Faulty switch or relays.	Diagnosis and replacement by electrician.
	Emergency stop engaged.	Unlock emergency stop button.
Motor stops during operation.	Current too high; power supply circuit breaker disengaged.	Disconnect plug; reset circuit breaker or replace fuse. Adjust max. abrasive feed.
	Motor is damaged.	Check motor; contact NFE.

**Note:** For additional maintenance and repair information, reference this machine's Service Manual.

# Warranty

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National Flooring Equipment Inc. (referred to as "the Company") warrants that each new unit manufactured by The Company, to be free from defects in material and workmanship in normal use and service for a period of twelve (12) months from date of shipment from the Company. For administrative ease, will honor warranty for a period of fifteen (15) months from date of shipment from the company. Accessories or equipment furnished and installed on the product by the Company but manufactured by others, including but not limited to: engines, motors, electrical components, transmissions etc., shall carry the accessory manufacturers own warranty. Battery warranties are prorated over the warranty period. Customer is responsible for the inspection of equipment / parts upon delivery. Freight damages reported beyond authorized time frame will not be honored.

The Company, at its determination of defect, will repair or replace any product or part deemed to be defective in material or workmanship within specified warranty time period. All product determinations and / or repairs will take place at the designated Company repair facility, or at a certified warranty location designated by the Company. The Company will coordinate and be responsible for all freight expenses associated with valid warranty claims. Freight and shipping expenses associated with abuse or misuse will be back charged to the Distributor/Customer. The Company reserves the right to modify, alter or improve any part / parts without incurring any obligation to replace any part / parts previously sold without such modified, altered or improved part / parts. In no event shall the seller or manufacturer of the product be liable for special, incidental, or consequential damages, including loss of profits, whether or not caused by or resulting from the negligence of seller and / or the manufacturer of the product unless specifically provided herein. This warranty shall not apply to any products or portions there of which have been subjected to abuse, misuse, improper installation or operation, lack of recommended maintenance, electrical failure or abnormal conditions and to products which have been tampered with, altered, modified, repaired, reworked by anyone not approved or authorized by the Company or used in any manner inconsistent with the provisions of the above or any instructions or specifications provided with or for the product. Any and all unauthorized onsite warranty work conducted by unauthorized personnel or any outside person(s), is not covered by the Company unless the work has been pre-authorized by a predetermined manufacturer representative. This excludes wearable parts and/or consumables.

Defective or failed material or equipment shall be held at the purchaser's premises until authorization has been granted by the Company to return or dispose of defective products. Products returned for final inspection must be returned with a manufacturer authorized Return Material Authorization (RMA). Any unauthorized return of equipment will be declined at the dock by the Company. Any non-approved items returned with approved returned items are subject to rejection and will not be credited. Credit will be issued for material found to be defective upon the Company's inspection based on prices at time of purchase.

**TO OBTAIN SERVICE CONTACT NATIONAL FLOORING EQUIPMENT, INC. TOLL FREE AT 800-245-0267 FOR A REPAIR AUTHORIZATION NUMBER. COD FREIGHT RETURNS WILL NOT BE ACCEPTED. FREIGHT COLLECT SHIPMENTS WILL NOT BE ACCEPTED. WARRANTY REPAIRS MUST BE ACCOMPANIED BY DATE OF PURCHASE RECEIPT AND A RETURN/REPAIR AUTHORIZATION NUMBER.**

**RETURN/REPAIR AUTHORIZATION NUMBER:** \_\_\_\_\_

**MACHINE SERIAL NUMBER:** \_\_\_\_\_





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