



Original instructions in English language.

OPERATING INSTRUCTIONS 2-30DS Global VERSION 2.1





Inspection comments

| | |
|---|-------|
| Inspection before initial operation on: | _____ |
| By: | _____ |
| Date of initial operation: | _____ |
| Serial number & Year of manufacture: | _____ |

Recurring inspections / maintenance log

| Date / Hour counter | Findings | Repairs / Cleaning | Test on | By* |
|---------------------|----------|--------------------|------------|-----|
| | | | | |

*Competent person

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1. Introduction

Before use, operators must be provided with information, instruction and training for the use of the machine and the substances for which it is to be used, including the safe method of removal and disposal of the material collected. All persons who are working with or maintaining this machine must read the manual carefully and understand it fully. In case you sell the unit, hand it on to the next owner. Keep this manual always with the machine, to enable it to be referred to at any time. Any other work not covered by this operating manual must not be carried out.

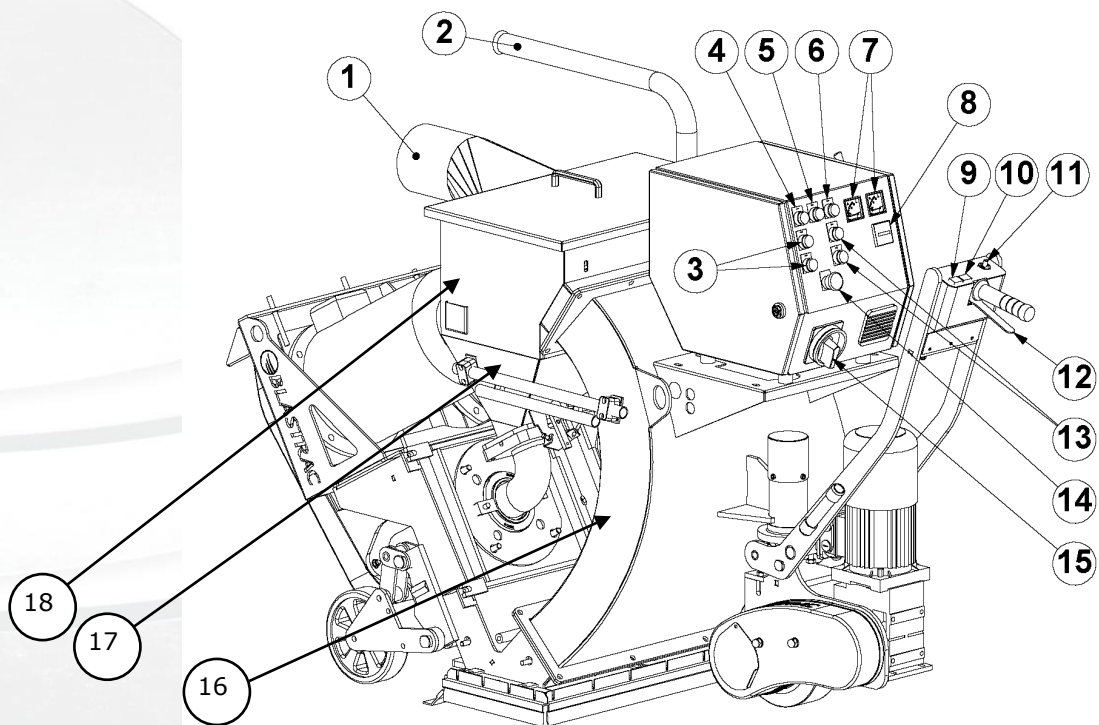
This machine is designed for industrial use by professionals. Only authorized and trained personnel may operate this machine. This machine is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge. **Blastrac BV** offers a course on the use of the machine in order to make the operating and maintenance personnel familiar with all elements of the machine. Always use common sense when working with machines.

2. Machine description

The **Blastrac** blast cleaning machine 2-30DS Global 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. The intended use of this machine is blast cleaning of the following surfaces: Steel, concrete, stone and asphalt. The machine may not be used for other purposes. The manufacturer will not be liable for damage resulting from incorrect usage, in these cases the user assumes all risks.

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

2.1 Blast machine

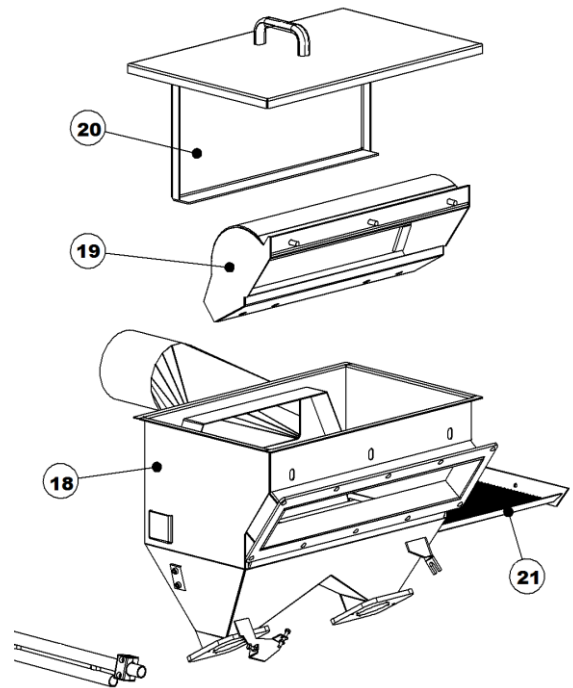


| | | | | | |
|---|---------------------------------|----|-----------------------------------|----|-------------------------|
| 1 | Connection pipe for dusthose | 7 | Ammeters left & right blast motor | 13 | Blast motors ON and OFF |
| 2 | Cable guide | 8 | Hour counter | 14 | Emergency shutdown |
| 3 | Drive control ON and OFF | 9 | Overdrive | 15 | Main switch |
| 4 | Control lamp CONTROL VOLTAGE ON | 10 | Move forwards | 16 | Rebound |
| 5 | Control lamp FAULT | 11 | Speed control | 17 | Hopper |
| 6 | Control lamp BLASTMOTORS ON | 12 | Travel switch | 18 | Separator |



2.2 Separator, deflector and hopper

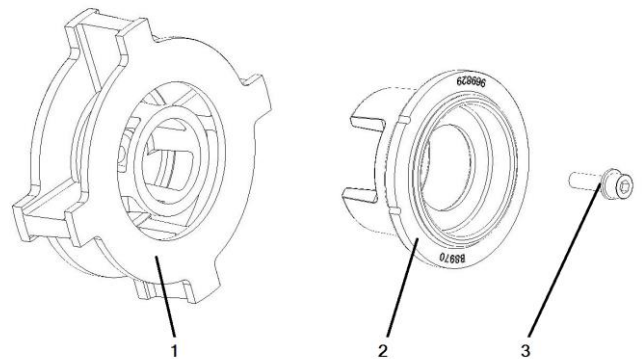
The abrasive separator is mounted to the end of the rebound. The deflector (19) separates the abrasive from contaminants and feeds the cleaned abrasive onto the separator tray (21) and back into the hopper. The separator tray (21) has a wire mesh and prevents any coarse contaminants from getting into the blast wheel. In order to clean the separator tray, the tray can be removed from the side.



2.3 Blast wheels

The heart of the blast cleaning machine are two blast wheels (1) which throw the abrasive onto the surface to be cleaned by using centrifugal force. The blast wheels are placed in a protective housing lined with replaceable wear parts. The blast wheels are driven by two electric motors.

The control cage (2) is placed over the middle of the blast wheel. Once the control cage is carefully set, it regulates the throwing angle of abrasive.



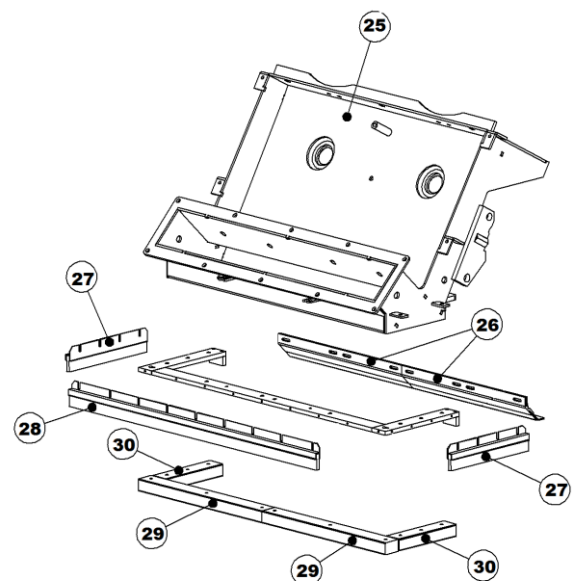
2.4 Abrasive sealing

Magnetic seals (29+30) are fitted to the front and the sides of the blast housing outlet and are surrounded by brush seals (27+28). At the rear there are 2 skid seals (26) sliding over the floor.

The seals are employed to seal the blasting area in a way to avoid leakage of any abrasive.

The correct height adjustment of the magnetic seals (10-12 mm) is very important for optimum functionality of the machine.

The brush seals may be 1 mm maximum above the surface.



3. General Safety Rules



Warning!

Read all safety warnings and all instructions. Failure to follow the warnings and instructions may result in electric shock, fire, explosions and / or serious injuries.

Only authorized and trained personnel may operate this machine. This machine is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge.

It is the responsibility of the user to analyse the surface to be treated. The surface may not contain any substances which could pose a fire-, explosion- or health risk when treated. The user should make a risk assessment on the basis of the information obtained about the surface to be treated and take proper precautions for the work to be performed.

In case of any inappropriate usage, improper operation or repair, the producer shall be exempt from liability.

3.1 Work area safety

- a) Do not use the machine in rain, damp or wet locations.
- b) Avoid dangerous environments: do not work in the presence of explosive atmospheres, in the presence of flammable liquids, gases or dust. Remove materials or debris that may be ignited by sparks.
- c) In some cases sparks could be created by the blast cleaning process.**
- d) The surface to be treated must be clean, make sure to remove all stones, screws etc..**
Any stones, screws, bolts, pieces of wire etc. could cause serious damage to the machine if it gets inside the machine!
- e) Make sure there is enough ambient light on the work area. Cluttered or dark areas invite accidents.
- f) Keep children and bystanders away while operating the machine. They are likely not to foresee the potential dangers of the machine. Distractions could cause you to lose control of the machine.
- g) Persons who are not operating the machine must not be permitted to stay in the surrounding area of at least 5 meter from the machine.
- h) Never use the machine when the surface is not clear and if there is a risk of stumbling or tripping.
- i) Remove electrical cables and dust hose(s) from the surface to be treated.
- j) Make sure that there are no cables or hoses in the driving direction of the machine.
- k) Make sure that there is nothing standing or situated on the surface to be treated.
- l) Make sure the machine can travel over all inequalities on the surface, small inequalities like weld seams or (floor) joints are no barriers for the machine.
- m) Never operate the machine when workplace is wet. Never stay in the rain with the machine.**
- n) Check if there are any obstacles that can snag the cables when the machine is moving.
- o) Remove all objects from the surface that can damage the machine. Remove reinforcing steel or other objects protruding from the surface in order to prevent damage to the machine.
- p) Warning! Make sure that the surface to be treated does not contain dangerous materials such as:**
 - combustible or explosive dusts or substances.
 - carcinogenic or pathogenic substances.
- q) It is necessary to provide for an adequate air change rate L in the room if the exhaust air is returned to the room. Comply with the National regulations.
- r) Secure the work area around the machine in public areas providing an adequate safety distance from the machine. Use a red and white safety chain and danger sign to enclose the work area.

3.2 Electrical safety

- a) Use only extension cables for extending the main cable that are sized and marked in accordance with the overall power consumption of the machine. Do not use damaged extension cables.
- b) Electrical cables must be rolled entirely off of the reels.
- c) Any damage to the electric cables and/or electrical components is not permitted.
- d) If the power supply cable is damaged, it must be replaced immediately. Only use original Blastrac parts.
- e) The voltage on the identification plate must comply with the power supply.
- f) Use an electrical power supply connection with earth connection and earth leakage circuit breaker.
- g) The circuit breaker of the power supply must have a "D" characteristic. Circuit breakers with a "C" or "B" characteristic can give problems when switching the machine on.



- h) **Keep the machine original; The machine is always equipped with an earthed connection, do not change this** and always use earthed cables with an earthed plug.
- i) Inspect and test the electrical components regularly. The electrical components have to satisfy with the requirements set out in the harmonised norm EN60204-1.
- j) Always call a skilled electrician or your distributor when you have questions about the safety of the electrical components.
- k) Work on electrical equipment or operating materials may only be undertaken by a skilled electrician or by trained persons under the guidance and supervision of a skilled electrician as well as in accordance with the electrical engineering regulations.
- l) Always use tools that are insulated against voltages.
- m) Do not abuse the cables. Never use the cables for carrying, pulling or unplugging the machine. Keep cables away from heat, oil, sharp edges or moving parts. Damaged or entangled cables increase the risk of electric shock. Do not fold the cable or clamp it.
- n) Don't pull out the power supply cable out by the wire, but by the connector.
- o) Be careful with water on the treated surface. Electrical cables must not come into contact with water.
- p) The main power switch on the machine must be in the "Off" position before connecting to the power supply.
- q) During a long standstill of the machine, pull out the main plug.
- r) If the machine is to be operated using power from a generator, the generator must be operated in accordance with the current legal regulations and directives in force. (this applies to the protective earth conductor in particular) in order to ensure that all safety devices are functioning and to eliminate possible damage to electrical components.

3.3 Personal safety

- a) **Always wear Personal Protective Equipment while working with the machine.**
 - Dust mask class FFP3 or higher
 - Ear protection
 - Safety glasses with lateral protection
 - Protecting gloves
 - Safety shoes
- b) Dress properly. Do not wear loose clothing or jewellery. Keep your hair, clothing and gloves away from moving parts.
- c) Personnel must tie back long hair and not wear loose clothing or jewellery including rings.
- d) Stay alert, watch what you are doing and use common sense when operating the machine.
- e) Always seek professional medical attention immediately in case of injury.
- f) All persons surrounding the machine should wear Personal Protective Equipment.

3.4 Machine safety general

- a) Safety functions and operating functions must work correct.
- b) No loose bolts and nuts permitted.
- c) Never operate machine without the guards and/or safety devices in place.
- d) Never change anything on the safety devices on the machine!
- e) Do not use the machine when it is damaged.
- f) Do not **open** or **remove protective guards** while driving gears are running.
- g) The machine, specially the handle grips must be dry and free of fats/oils.
- h) If the length of the brushes is, due to wear, less than 5mm or they are extremely deformed, the brushes have to be replaced. Check the Service Manual for the order numbers.
- i) All repair work has to be done by qualified Blastrac personnel, this guarantees a safe and reliable machine.
- j) Always use original Blastrac spare parts and abrasive. This will ensure the best performance. Only original parts meet the factory specifications and quality. Otherwise Blastrac BV cannot guarantee the safety of the machine. The part numbers can be found in the Service Manual.
- k) Check the rotating direction of the motor before operation. The correct direction is given with an arrow on the housing of the motor.
- l) If safety-critical changes occur to the machine or its working method, the machine must be shut down immediately! The cause of the fault must be established, and rectified.
- m) In the event of operational malfunctions the machine must be shut down immediately and secured!
- n) **Never use the machine without a suitable (Blastrac) dust collector!**



3.5 Shot/steelblasting safety

- a) Never lift the blast head during blasting! This could cause serious injury to yourself and others around you!
- b) **Abrasive can escape from the sides of the blast head at high speed!** Wear safety glasses with lateral protection and close-fitting protective clothing.
- c) Be very careful when inserting the quick release pin into the traction wheel.
- d) Check the following parts daily for damage and wear to avoid unnecessary long and costly standstill on the workplace; blastwheel, feedspout, liners, magnet- and brush sealing; Replace the parts when you can see obvious signs of wear and tear. Wear grooves are acceptable until 75% of blade thickness has been worn away.
- e) Check the parts of the separator on wear and defects. Remove foreign bodies and dust deposits to prevent clogging of the separator.
- f) The cover of the separator and separator tray must be closed to keep the vacuum in the machine.
- g) **The machine will heat up during blasting!** Don't risk getting burned, always wear gloves and only touch the handle grip(s).
- h) Check the level of abrasive in the storage hopper before work starts. Refill if necessary.
- i) Remove the abrasive from the abrasive storage hopper before storage.
- j) **In some cases sparks could be created by shot / steelblasting.**

3.6 Dustcollector safety

- a) Always use a Blastrac dust collector to ensure a dust-free operation of the machine and clean air at the workspace. Also the airflow helps to cool the machine and prevents overheating.
- b) Read the operating instructions of the dust collector before using it.
- c) The dust container/bag of the dustcollector must be emptied regularly. Comply with the local waste treatment regulations considering the removed material.
- d) The dust hose must be connected properly with a hose clamp and industrial tape.
- e) The dust hose must be undamaged and free of obstructions.
- f) Always switch on the dust collector first!

3.7 Maintenance safety

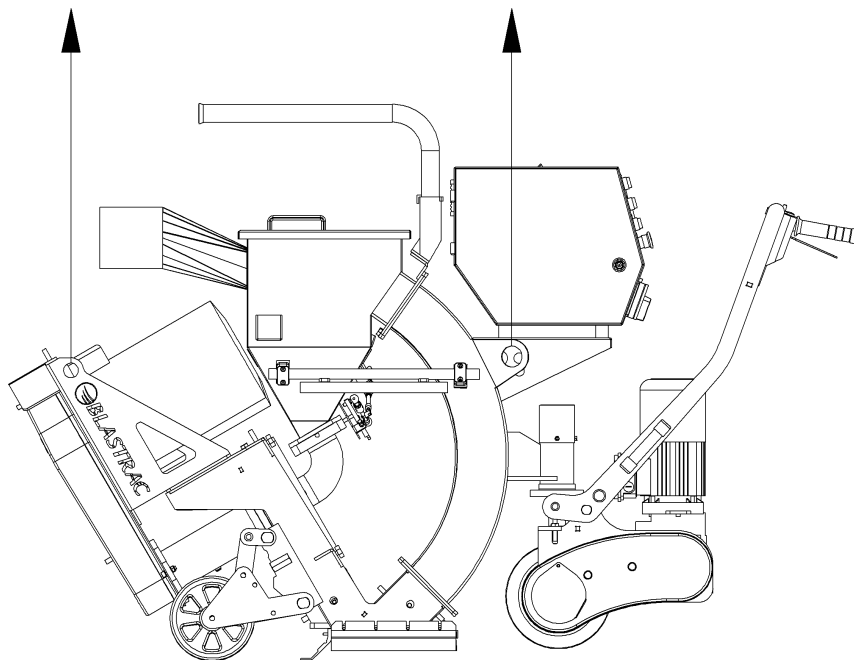
- a) Pull out the main plug and place it in sight, before starting inspections and repairing on the machine. The main switch can be locked in the "OFF" position by using a padlock and placing it through the main switch.
- b) Wait for standstill of all drives before any inspections, adjustments and/or maintenance work is started.
- c) Block machine in stable position before doing any maintenance work.
- d) Failures due to inadequate or incorrect maintenance may generate very **high repair costs** and long standstill periods of the machine. **Regular** maintenance therefore is imperative.
- e) Operational safety and service life of the machine depends, among other things, on proper maintenance.
- f) Prevent premature wear by keeping the machine as dust free as possible. Clean the machine for this reason regularly with a dust collector and non-aggressive materials. Never use a high pressure water cleaner to clean the machine.
- g) Do not use any **aggressive** cleaning materials!
- h) Use lint-free **cleaning cloths!**
- i) It is advisable to stock all spare parts or wear parts that cannot be supplied quickly. As a rule, production standstill periods are more expensive than the cost for the corresponding spare part.
- j) The suitable precautions include decontamination before disassembling the machine, adequate filtered ventilation of the exhaust air from the room in which it is disassembled, cleaning of the maintenance area and suitable personal protection equipment.

3.8 Transport safety

- a) Be aware of your surroundings and machine operating level. Do not side hill, do not run on steep incline, this could cause machine to tip over.
- b) The net weight of the 2-30DS Global is 750 kg. Use a crane or lift when transporting the machine, use the lifting eyes / lugs of the machine.
- c) Before every use check the lifting eyes/lugs and welds for: deformation, damages, cracks, corrosion and wear.
- d) **Pay attention that the drive unit does not turn away during lifting of the machine. Hold on to the steering handle until the machine is of the ground.**



- e) When lifting the machine from the ground, always use the lowest lifting speed. The cables must first be tensioned at this speed; they must not be slack when the machine is lifted from the ground.
- f) During hoisting make sure to be at a safe distance from the machine with the most optimal view on the machine and working environment.
- g) Never stand directly below the machine.
- h) When transporting the machine do so in such a manner that damage due to the effects of the use of force or incorrect loading and unloading is avoided.
- i) The lifting eyes can also be used to fasten the machine on a pallet or during transport.
- j) Always drive backwards when driving up to a ramp or grade, and forwards when driving of the ramp.
- k) Chock wheels for transport and keep control handle in neutral position.
- l) Don't leave the machine unsecured on jobsites.
- m) Park the machine always on a flat horizontal and levelled surface.
- n) Remove the abrasive from the machine before transport.
- o) Make sure the electrical cable and dust hose are disconnected before transport.
- p) Store the cleaned and dry machine in a humid free room. Protect the electrical motor from moisture, heat dust and shocks.
- q) Never use the machine for lifting persons or items.
- r) Only lift the machine as shown in the picture below.





3.9 Signs on the machine

The following stickers are placed on the machine. Meanings of these symbols are:

| | | | |
|--|---|--|---|
| | ! Danger Hazardous voltage in motor even when solid state controller is OFF. Disconnect main power before servicing motor, controller or associated wiring. | | Wear a dust mask class FFP3 or higher. |
| | No lifting point. | | Hearing protection is obliged. |
| | Lifting point | | Safety glasses with lateral protection are obliged. |
| | DANGER Rotating parts inside. Keep hands clear. Lock-out / shut down before servicing. | | CE-mark on this machine. |
| | | | Wear protecting gloves. |
| | | | Safety shoes obliged. |
| | | | Consult the manual before operating the machine. |

Type plate:

| | |
|--|---|
| | Name, address and CE mark. |
| | The machine type. |
| | The net weight of the machine in kilogram. |
| | The year of manufacture. |
| | The serial number of the machine. |
| | Email address, Website, Telephone & fax number. |

EU Declaration of Conformity:

4. Before operation

Before using the machine it is of great importance to inspect the machine. It is not permitted to use the machine if the machine safety is not according the checkpoints below.

4.1 Checkpoints power supply

- Use only extension cables for extending the main cable that are sized and marked in accordance with the overall power consumption of the machine.
- Electrical cables must be fully unwind of their reels.
- No damage is permitted for electrical cables.
- Use an electrical power supply connection with earth connecting.
- The main switch of the machine should be put to 'Off' before connecting to the power supply.
- Make sure the power supply is in accordance with the machine specifications.
- The circuit breaker of the power supply must have a 'D' characteristic. Circuit breakers with a "C" or "B" characteristic can give problems when switching the machine on.
- If the machine is to be operated using power from a generator, the generator must be operated in accordance with the current legal regulations and directives in force. (this applies to the protective earth conductor in particular) in order to ensure that all safety devices are functioning and to eliminate possible damage to electrical components.

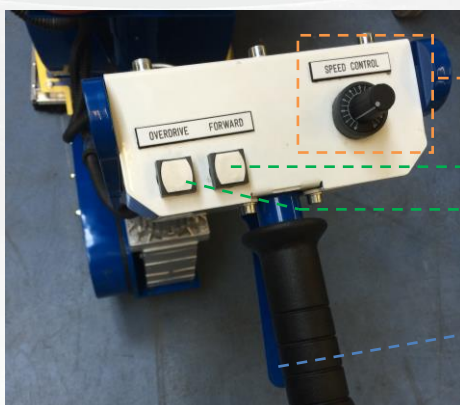
4.2 Checkpoints of machine

- Safety functions and operating functions must work correct.
- Check all screws and other fasteners for tightness. No loose bolts and/or nuts are permitted.
- Check the electrical components, cables and connections for wear and/or damages.
- Dust hose connection must be reliable: use hose clamps and industrial tape.
- Dust hoses must be undamaged and free of obstructions
- Check the following parts for damage and wear: blastwheel, feedspout, liners, magnet- and brush sealing. Replace the parts when you can see obvious signs of wear and tear. Wear grooves are acceptable until 75% of blade thickness has been worn away.
- Check de parts of the separator on wear and defects. Remove foreign bodies and dust deposits.

4.3 Checkpoints of Work area

- Check the surface to be treated for loose parts (stones, screws, etc.) The surface must be swept if necessary. Make sure the machine can travel over all inequalities on the surface. Small inequalities like weld seams or floor joints are no barriers for the machine
- Secure the work area around the machine providing an adequate safety distance from the machine. Use a red and white safety chain and danger sign to enclose the work area.
- Remove reinforcing steel or other objects protruding from the surface in order to prevent damage to the machine.
- **Warning! Make sure that the surface to be treated does not contain dangerous materials such as:**
 - combustible or explosive dusts or substances.
 - carcinogenic or pathogenic substances.

4.4 Drive control



Dial for setting the drive speed

Buttons for:
Forward driving (Hold to run)
Overdrive (Hold to run)

Drive handle (Hold to run) to activate the drive motor. When the lever is released the drive motor switches off.

4.5 Connecting the drive motor to the traction wheel

| | | | | | |
|---|--|--|---|--|--|
| 1 | | <p>Danger of crushing!</p> <p>Use common sense, do not get distracted during the activities.</p> | 5 | | <p>Insert the quick release pin inside the hole.</p> |
| 2 | | <p>Make sure the magnetic valve is CLOSED.</p> <p>Make sure the Blast motor is OFF.</p> | 6 | | <p>!WARNING! Use only 1 finger to press the button of the quick release pin, and keep applying pressure.</p> |
| 3 | | <p>Set the drive speed knob to the lowest possible setting, approximately 0,5.</p> | 7 | | <p>Use your other hand to operate the drive-motor handle (10).</p> |
| 4 | | <p>Open the wheel guard.</p> | 8 | | <p>When the drive-motor and wheel are aligned, the quick release pin will lock into place.</p> <p>Close wheel guard.</p> |

4.6 Driving with connected drive motor

Set the driving speed at the desired speed using the speed control knob. Place 1 hand on the handle grip and squeeze the switch lever, this will move the machine towards you, this is the normal working direction for blasting. Release the switch lever to stop. The driving speed can be adjusted while driving by turning the speed control knob.

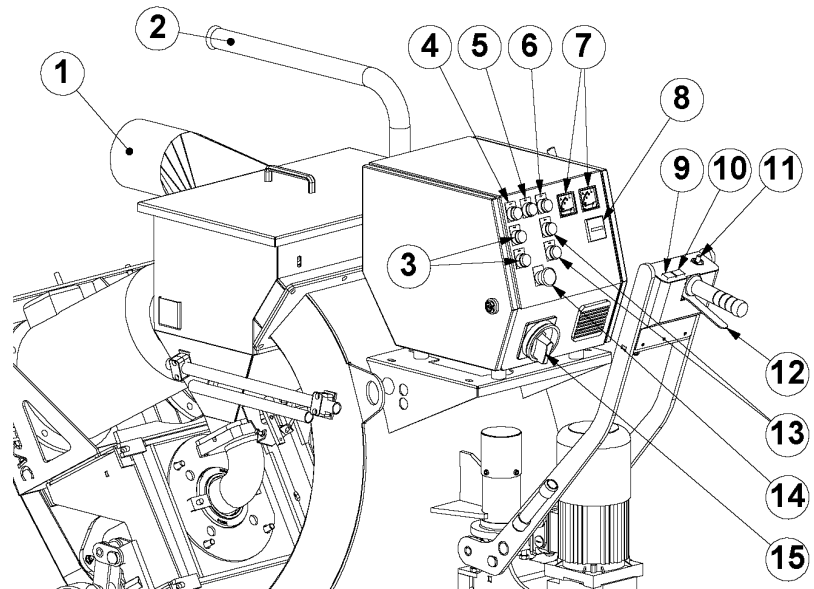
The OVERDRIVE-button makes it possible to drive at maximum speed without having to adjust the speed control knob. To do so, press and hold the OVERDRIVE-button while driving. **WARNING!** Mind your surroundings at maximum speed!

The FORWARD-button is used to drive forward, press and hold the button to do so. **WARNING!** Do not drive forward while blasting! This function is only used for maneuvering without blasting. Make sure the dust hose and electrical cable are out the way when driving forward.



5. Operating

During operating the 2-30DS Global, the following additional safety instructions must be followed closely.



5.1 Before switch on

- Check if the distance from magnet to the floor is 10-12mm. Check this height with aluminium strips.
- Check the distance from brush sealing to the floor. This may be max. 1 mm.
- Fill the separator equally with the selected abrasive up to the bottom of the separator tray. The magnetic valve must be closed whilst doing this.
- Connect the blast machine and filter unit with the dust hose. This connection must be reliable.
- Connect the power supply cable of the filter unit with the generator. Be sure that electrical power supply is correct.

5.2 Switch on the machine

- Before switch on the blast machine, switch on the filter unit.
- Press the green push button "Blast wheels ON" (13) and check the rotating direction of the blast motor. The correct direction is given with a arrow on the housing of the motor.
- Select the speed using the speed control knob. (item 11 of machine description)
- When the machine is traveling pull the abrasive control cable to open the magnetic valve. Observe the ammeters (7). It may indicate the full load amperage. After having blasted aprox. 2 m, close the abrasive valve, stop the machine and check the blasted surface.
- If the 'hotspot' is too much on the right, turn clockwise the cage a little bit. Never adjust the cage during blasting.

5.3 Switch off the machine

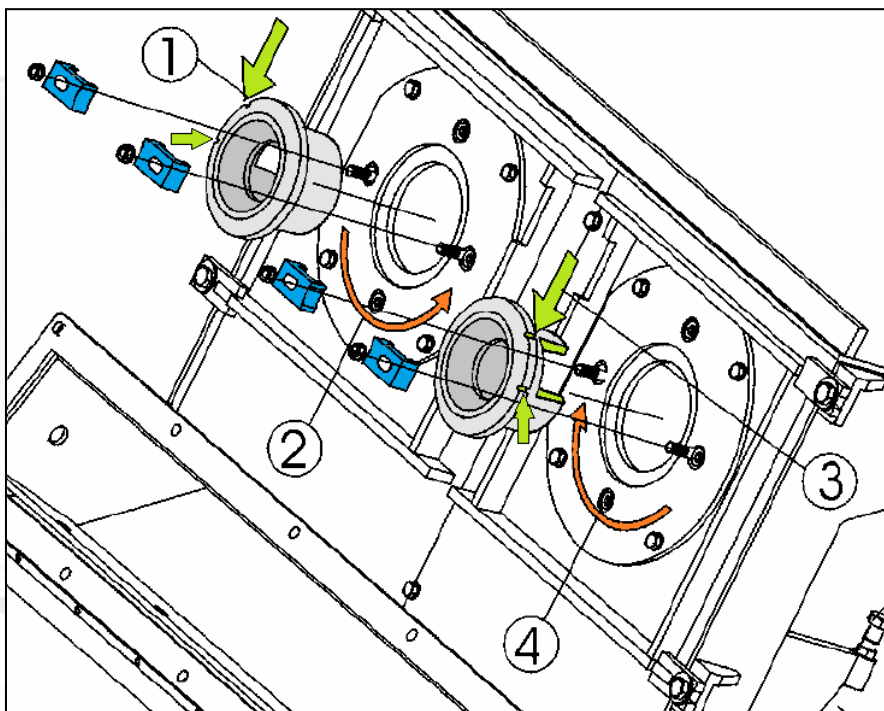
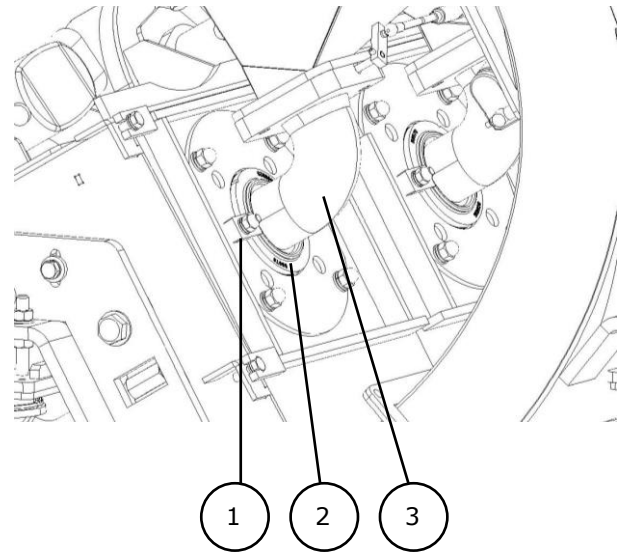
- Close the abrasive valve
- Press the red button "Blast wheels OFF" (13)
- Switch the main switch to position "OFF" (15)
- Pull out the connector of the main power supply of the machine.
- Switch off the filter unit.
- Wait for standstill of all drives before any inspection or maintenance works are started.

5.4 Adjusting the blast pattern

Correct adjustment of the control cages and thus of the blast pattern is a very important factor for optimum working with the 2-30DS blast cleaning machine.

Incorrect adjustment of the control cages results in very high wear and premature blasting-through of the liners in the blast wheel housing, as well as reduced blasting performance, uneven cleaning and a possible loss of the rebound energy of the abrasive.

The adjustment is effected by removing the feed spout (3), loosening the cage clamps (1) and turning of the control cage (2).



The control cages have lateral windows indicated by the cast grooves (1 + 3). The positions of the windows determine where the abrasive is fed onto the blast wheels and where it hits the surface to be treated.

The turning direction of the blastwheels is indicated by 2 + 4.

Every time the control cage is adjusted or replaced, the thread of the blast wheel fastening screw should be checked. Make sure that this screw will be tightened correctly. In addition, absolute care must be taken to clean the thread from dust and abrasive.

5.5 Setting the control cages:

The cast grooves on the control cage show the position of the control cage opening (1 + 3). The following adjustment standard value is valid: the control cage opening is approximately opposite to the throwing angle. The abrasive grain size plays an important role here. Different types of abrasive have different throwing characteristics due to their different weights and frictional resistance. This means that you must never use different types of abrasive at the same time.

The adjustment can be carried out as follows:

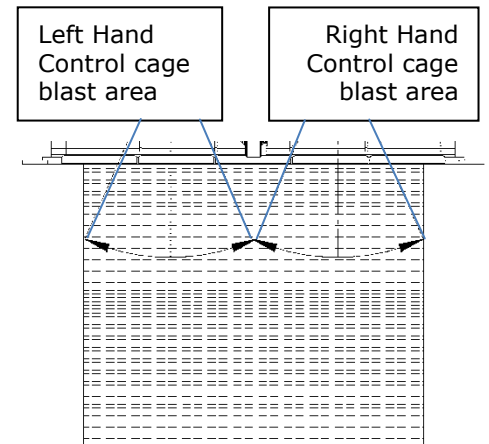
- Determine the upper and lower edges of the windows. (watch the cast grooves 1 + 3)
- Set the upper window edge of the left-hand control cage (1) to imaginary 11:50 of a dial. Set the upper window of the right-hand control cage (3) in a laterally inverted way.



- Move the blast head onto a 5-8 mm thick steel plate and blast for 45 seconds at full power without moving the machine from the spot.
- Stop the abrasive flow and move the machine until the blasted area is accessible.

With both hands **carefully** feel the temperature of the blasted area. The hot spot will be where the machine has developed the highest blast cleaning intensity. An even temperature from left to right indicates that the control cages are correctly positioned.

- Each control cage has its own blast area. They both have to be adjusted separately.
- Looking from the front of the machine onto the control cage: If the left side of the blasted area is warmer, turn the lower edge (cast groove) of the control cage anti-clockwise for 3-6 mm.
- If the 'hotspot' is too much on the right, turn the control cage 3-6 mm clockwise. Never adjust the control cages during blasting!
- This process has to be repeated until an even temperature across the blast pattern is achieved.



Notes:

With increased wear of the blast wheels, liners and control cages, the blast pattern will change.

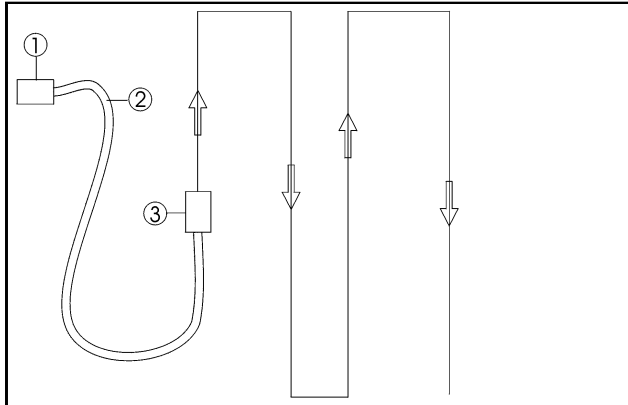
The size of the abrasive affects the blast pattern. With every exchange of abrasive, the blast pattern must be re-adjusted. The same applies for blasting on another type of surface.

Different types of abrasive have different throwing characteristics due to their different weights and frictional resistance. This means that you must never use different types of abrasive at the same time.

WARNING! Never loosen the cage clamps or try to adjust the control cage when the machine is in operation.

5.6 Operation

Carry out blasting in parallel tracks in such way that the dust hose and electric cable do not become twisted. The next figure shows the recommended blast cleaning paths leading away from the dust collector.



| | |
|---|------------------------------|
| 1 | Dust collector |
| 2 | Dust hose and electric cable |
| 3 | Blast cleaning machine |

Make sure that no vehicles, such as forklift trucks and other equipment run over the electric cable and the dust hose.

The selection of the correct advancing speed of the blast machine is important for a good blast cleaning result. In the case that the surface has different characteristics (e.g. different hardness or different coating thicknesses), a uniform blast result can be achieved by varying the advancing speed during blast cleaning.

The advancing speed depends on the material of the surface to be treated and the desired profiling.

The correct advancing speed can be found out by observing the blasted surface 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 advancing speed (0 -2).

Check the separator tray every 3 hours for foreign matter and large contaminants.



6. Maintenance

Maintenance work that goes beyond the scope described in this manual must only be performed by qualified Blastrac technicians.

Pay attention to Chapter 3 "**Safety**" during maintenance and repair works.

Failures due to inadequate or incorrect maintenance may generate very **high repair costs** and long standstill periods of the dust collector. **Regular maintenance** therefore is imperative. Operational safety and service life of the dust collector depend, among other things, on proper maintenance.

The following table shows recommendations about time, inspection and maintenance with normal use of the machine.

| Operating hours/ time period | Inspection points, maintenance instructions |
|----------------------------------|--|
| After repairing | <ul style="list-style-type: none"> Check the efficiency of all safety devices. Check whether all machine parts are assembled safely and correctly. |
| 12 h after repairing | <ul style="list-style-type: none"> Check all accessible screw connections and other fasteners for tightness. |
| Daily and prior to starting work | <ul style="list-style-type: none"> Check all safety devices working adequate. Check the function of the residual current operated device. Check the hoses for leaks, damages and wear. Check the hose connections for tightness and fixed seat. Check the electric connections and motors for sediments of dirt, foreign bodies and other contaminants. Check the blast wheels, blades, impellers, control cages, feed spouts, liners and fasteners for damages and wear. Check the magnetic, rubber and brush seals for wear. Check the separator parts for wear and defects. Check and empty the separator trays. Check the grid valves on damages and test if they are functioning correctly. |
| During operation | <ul style="list-style-type: none"> Watch the level and mixture of abrasive in the blast cleaning machine every hour. The mixture should be nearly clean. |
| Weekly | <ul style="list-style-type: none"> Check the belt tension of the blast motors. Check the bearing seals for damage and wear. |
| Every 3 months | <ul style="list-style-type: none"> Check the chain tension of the drive wheel. Check and clean the parts of the drive wheel. Inspect all welding on the machine for cracks. |
| Annually | <ul style="list-style-type: none"> Full overhaul and cleaning of the complete machine. |

The time indications are based on uninterrupted operation. When the indicated number of working hours is not achieved during the corresponding period, the period can be extended. However a full overhaul and a technical inspection must be carried out at least once a year, consisting of inspection of filters for damage, air tightness of the machine and proper function of the control mechanism. This technical inspection shall be carried out by the manufacturer or an instructed person.



Due to different working conditions it can't be foreseen how frequently inspections for wear check's, inspection, maintenance and repair works ought to be carried out. Prepare a suitable inspection schedule considering your own working conditions and experience.

We recommend to execute the first repair works on the machine having support of **Blastrac** personnel. With this your maintenance personnel gets the opportunity to be trained intensely.

Screws, bolts etc. that have been removed must be replaced with those of the same quality, strength, material and design.

Pay attention to unusual noises or strong vibrations. Check for the cause of every big change. Call a technician if you have doubts about the cause or when a repair without a technician seems not possible without damages. Only use genuine Blastrac spare parts.

Our specialists will be happy to assist you with more advice.

Prior to any repair works on the machine and all its drives, secure the machine against unintentional switching on. Put the machine to its safety off position.

Follow additional operating and maintenance instructions of Original Equipment Manufacturers during your service and maintenance work.

Further is advised:

Clean the machine every day with air and non-aggressive materials. Never use a high pressure water cleaner to clean the machine. Protect the electrical parts and motors from moisture, heat, dust and shocks. Store the cleaned and dry machine in a dry and humid free room. Remove the abrasive out of the abrasive storage hopper.

Do not weld, flame cut or perform grinding works on or near the machine. Danger of fire or explosion exists! Provide adequate ventilation when working in a confined space. Secure the maintenance area if necessary.

Always use original Blastrac spare parts, wear parts and consumables, this will ensure the best performance. Only original parts meet the factory specifications and quality. Otherwise Blastrac BV cannot guarantee the safety of the machine. The part numbers can be found in the Service Manual.

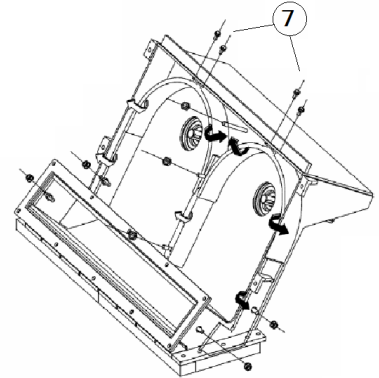
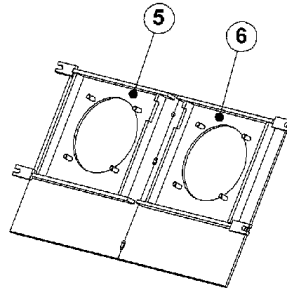
All repair work must to be done by qualified Blastrac personnel, this to guarantee a safe and reliable machine.

Any guarantee on the machine is expired when:

- Non original Blastrac parts have been used
- Repair work is not done by qualified Blastrac personnel
- Changes, add on's or conversions are undertaken without written permission of Blastrac BV.

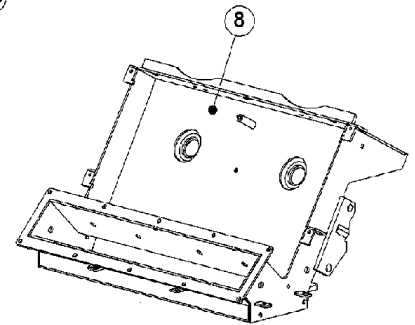
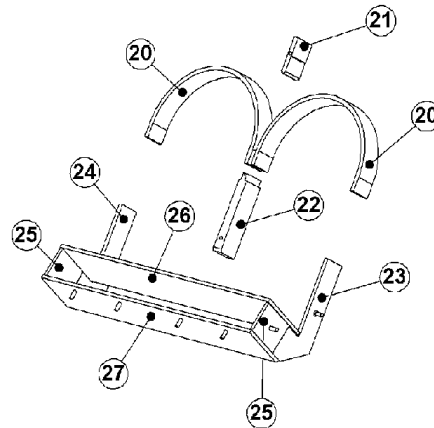
6.1 Changing the liners

- Unscrew the housing front covers (5 + 6) and remove them.
- Loosen the press bolts (7) of the top liners and take the top liners (20) out.
- Loosen the nuts of the side liners (23 + 24 + 25) and plenum liners (26 + 27). Take them out of the housing.



To mount the liners, keep on the following sequence:

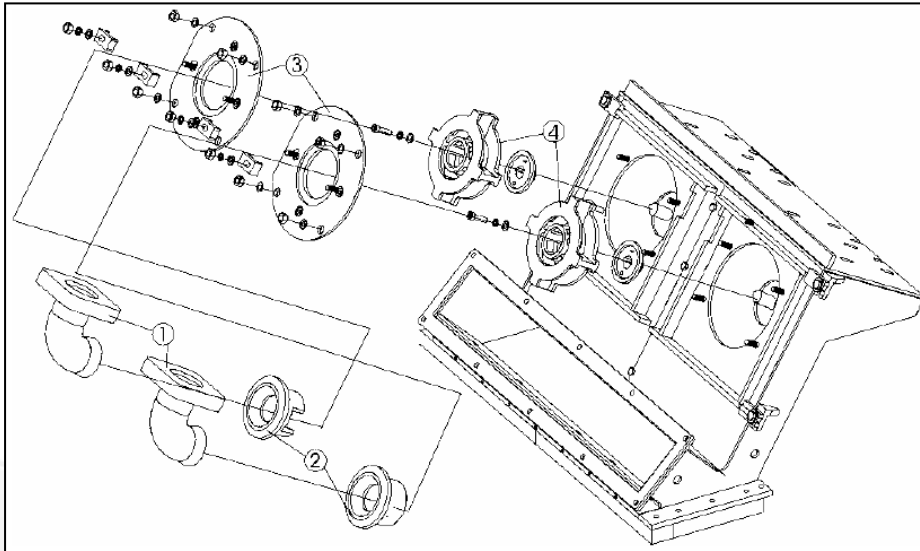
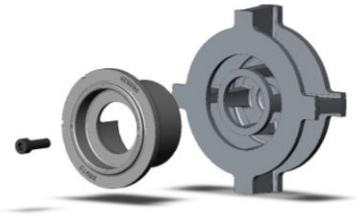
- First place the plenum liners (26 + 27) and fix them with the nuts.
- Place the side liners (23 + 24 + 25) inside the housing. The sideliners may stick out the body for max. 1mm. Tighten the nuts.
- Place the centre liner bottom part (22).
- Place the top liners (20) in the housing and make sure that the top liner sits close to the edges of the side liners and center liner.
- Place the center liner top part (21).
- Place the housing front covers (5+6) and tighten the nuts.
- Tighten the pressure bolts of the top liner slightly and press the top liner against the side liners.



6.2 Changing the tune-up kit

The tune-up kit consists of the blastwheel, the cage and a bolt.

Tune-up kit order number: B20536K



- Remove the feed spout (1) and loosen the cage clamps.
- Remove the control cage (2) and control cage shim.
- Unscrew the 4 nuts of the blastwheel cover plate (3) and take it off.
- Block the blastwheel (4) and remove the central fixing bolt.
- Take the blastwheel out of the housing.
- Check the wheel hubs for wear and replace them if necessary.

Clean all threads and use a new central fixing bolt when mounting a new blastwheel.

- Place the blastwheel (3) on the wheel hub and tighten the central fixing bolt.
- Fix the blastwheel cover plate with the 4 nuts.
- Insert the shim and control cage in the center and clamp the control cage with the cage clamps so that the blastwheel can rotate freely
- Turn the blastwheel manually. It must rotate freely.
- Place the feed spout between the abrasive valve and the control cage.

Clean the machine every day with air and non-aggressive materials. Never use a high pressure water cleaner to clean the machine.

Store the cleaned machine in a dry room. Protect the electrical motor from moisture, heat dust and shocks. Remove the abrasive out of the abrasive storage hopper.

6.3 Deflector maintenance

Dirt could build up on the inside of the deflector (3), especially when the surface contains a lot of bitumen.

During the blasting process the bitumen will heat up, become sticky and it will stick to the inside of the deflector. When the bitumen cools down / hardens it forms a hard crust that stops the shot from moving through. If this crusted dirt is not removed regularly the performance of the machine will reduce drastically.

The deflector should be checked and if necessary cleaned, every 2 days.

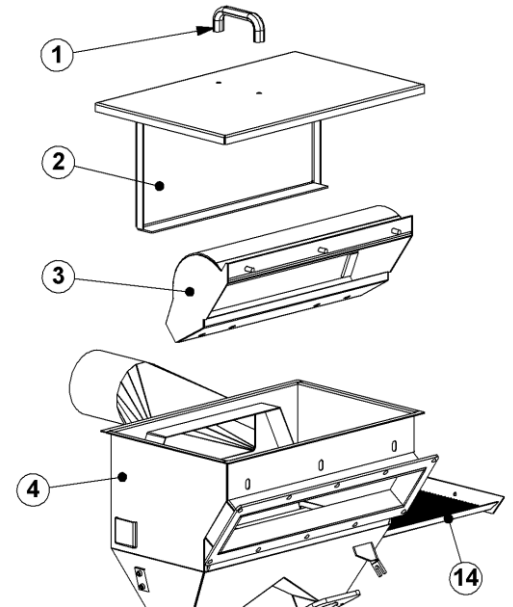
-Remove the 3 bolts that hold the deflector, and lift it out of the machine.

-Remove all of the dirt out the deflector.

-Check the rest of the separator for dirt and sediments.

-Also check the seals for damage or wear.

-Make sure everything is mounted back correctly.



6.4 Belts

The belt drives are designed for the required drive power. Forcing the drives to grant a higher output by over tensioning the belts results in belt breaks, bearing damage and thus to lower efficiency. A low belt tension results in slippage causing an increased belt temperature and thus to premature destruction of the belts. Temperatures exceeding 70°C for a long period of time reduce the service life and performance of the belts.

The grooves of the belt pulleys have to be free from rust, grease, dirt and damages. The use of belt wax or similar substances to increase the friction coefficient is unnecessary and damages the belts. Avoid any contaminations by oil, grease or chemicals.

In order to grant a perfect output transmission, the belt drive must be observed continuously.

Fitting the belts

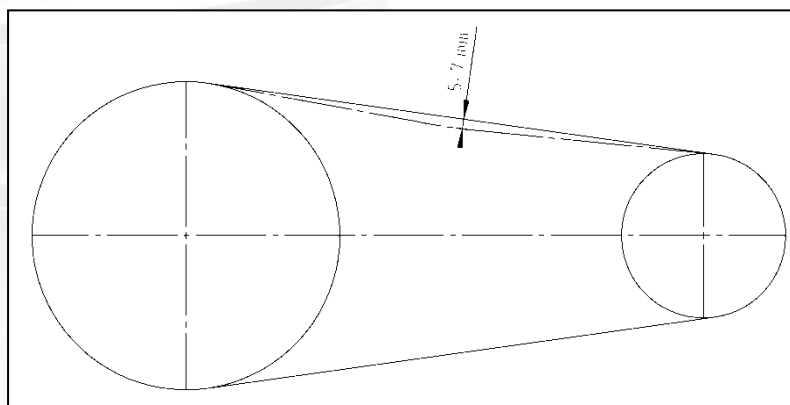
Remove the belt guards only when the driving motors are in standstill and the main switch of the machine is secured.

- Release the tension of the belt drive by reducing the distance between both shafts.
- Insert the belt in the belt pulley grooves manually without forcing the belt.
- Tension the belt by increasing the distance between the shafts of as described below.
- Mount the pertaining protective drive equipment.

Tensioning the belts

The correct belt pre-tension is of great importance for the perfect output transmission and for maintaining the normal service life of the belts. Insufficient or excessive pre-tensioning frequently leads to premature failure of the belts. Over-tensioning often causes bearing defects in motors and bearing units.

Check the correct pre-tension by pressing down the belt. The distance the belt can be pressed down should be 5-7 mm at approx. 10 kg.





6.5 The chain drive

A chain drive needs relatively little maintenance when the correct chain is selected, when it is mounted correctly and, in this case of application, is not lubricated. The drive chain is protected by a chain guard. The chain guard prevents excessive contamination and prevents accidents.

The chain drive should be cleaned every three months. On these occasions check the aligning of the chain wheels and the chain tension.

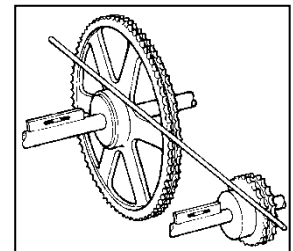
Cleaning

In order to clean thoroughly first remove the dirt adhering to the outside of the chain drive using a hard or wire brush. Then wash the chain in petroleum ether or similar. After that clean the dirt from the internal parts of the chain.

Alignment of the chain wheels

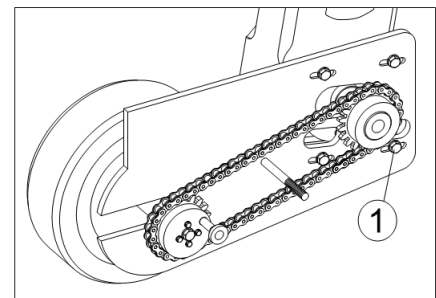
Check the mounting precision by means of a ruler to be put to the chain wheels.

Incorrect mounting makes the internal link plates press against the external link plates and, thus, accelerates the chain wear or even causes the chain wheels to lock up.



Chain tension

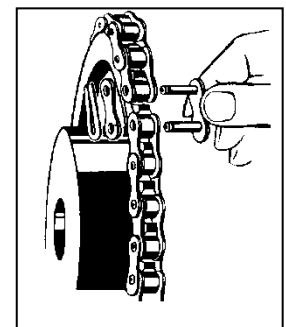
The travel drive motor is mounted on a receiver plate with slotted holes. When it is necessary to re-tense the chain, this can be carried out by shifting the motor in the slotted holes (1). The correct chain tension is achieved when the chain allows to be pressed for about 5 mm between the chain wheels.



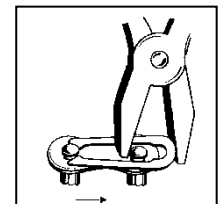
Fitting the chain

Before mounting the chain it must be degreased to prevent any abrasive or abrasive particles from adhering.

The chain is supplied as a chain string and has to be prepared during mounting. This is done as follows: Place the chain on the chain wheels so that the links lie in tow adjacent gaps between the teeth. Now close the chain using the coupling link. With heavy chains or big distances between the shafts use a pre-stressing tool in order to bring the two end links so close together that the coupling link can be inserted without being deformed.



On mounting coupling links with springs, their closed sides should point to the running direction of the chain (see figure). Put the spring onto the link plate and press it over the pin into the ring groove by means of a pair of tongs. Demount the spring in the opposite order.



Re-lubrication of the traction wheel bearings

The bearing units of the traction wheel are equipped with a grease fitting which allows the bearings to be re-lubricated in service. Re-lubricating the bearings once every 2 years should be more than sufficient.

When lubricating, care must be taken to use greases that are compatible with the original grease. We suggest a medium temperature, lithium calcium base, NLGI Grade No. 2 grease having an oil with a viscosity of 200mm²/s at 40°C. When a unit is being re-lubricated, avoid excessive pressure which may cause damage to the bearing seals.

7. Troubleshooting

| Fault | Possible cause | Remedy |
|---|--|---|
| Excessive vibration | Blast wheel is worn irregularly. Imbalance due to worn or broken wheel blades. | Replacing the tune-up kit. Replace the tune-up kit and remove all broken parts from the machine. |
| Unusual noise | Too little play or poor alignment of the rotating parts. Loose and incorrect set screws. Squeaking wheels. Seizing motor. | Check alignment of the rotating parts (blast wheel and control cage). Check whether all screws and parts are fixed tightly). Replace the wheels. Replace the motor. |
| Reduced or no blasting performance | Inadequate abrasive supply to the blast wheel. Contaminated abrasive. Feeding of abrasive - magnetic valve and abrasive storage hopper. Blast wheel or control cage. Adjustment of the magnetic valve. "Shocked blast wheel". At the start of the blast process too much abrasive at once hits the wheel. The travel speed is too high. | Clean wire mesh, top up abrasive if necessary. Abrasive is heavily contaminated, check the dust collection system. Check and clean blocked feed spout or magnetic valve. Worn blast wheel or control cage, replace tune-up kit if necessary. Check the adjustment of the magnetic valve. Close the magnetic valve and stop the blast wheel motor. Start the blast process again and slowly open the valve. Reduce the travel speed. |
| Escaping abrasive | Poor sealing. | Check all seals and replace if necessary. |
| Abrasive loss on the surface or escaping abrasive at the blast head | Incorrect height adjustment of the magnetic seals. Worn magnetic and/or brush seals. Poor abrasive quality. Worn tune-up kit. | Adjust the magnetic seals. Replace the magnetic and/or brush seals. Contact Blastrac . Replace the tune-up kit. |



| | | |
|--|--|--|
| Contaminated abrasive | <p>The dust collector is not generating enough suction power so that dust remains in the abrasive.</p> <p>Clogged dust hose</p> <p>Ripped or damaged dust hose</p> | <p>Check the dust collector (filter-cartridges, dust hopper and seals)</p> <p>Check and clean the dust hose</p> <p>Replace dust hose</p> |
| Excessive wear in blast housing and rebound plenum | <p>Wrong abrasive.</p> <p>Incorrect setting of the control cage</p> | <p>Contact Blastrac.</p> <p>The thrown abrasive blasts the housing and not the surface to be blasted. Adjust the blast pattern.</p> |
| Machine is not moving | <p>The travel speed is too low.</p> <p>Blast head gets caught on the floor.</p> <p>Drive unit broken / not connected</p> | <p>Increase the travel speed.</p> <p>Shut the machine down and adjust the height.</p> <p>Check chain drive.</p> |
| Blast wheel motor does not switch on | <p>Motor protection switch has triggered.</p> | <p>Check and switch on again. Check the mains power supply.</p> |
| Blast wheel motor switches off during operation | <p>Safety fuse or fault current breaker has triggered.</p> <p>Connection cable is defective.</p> <p>Cables connecting the units (travel motor, etc.) are defective.</p> <p>Motor protection switches have triggered.</p> | <p>Have the fault checked by an electrician.</p> <p>Replace the cable.</p> <p>Replace the cable(s).</p> <p>Have the fault checked by an electrician.</p> |
| Machine does not travel | <p>Fuse defective, short circuit in the travel motor lead or tachometer lead, motor defective.</p> <p>Control unit defective.</p> <p>Potentiometer defective.</p> | <p>Have the unit checked by an electrician.</p> <p>Replace the control unit.</p> <p>Replace the potentiometer.</p> |

Note: If the motor protection switches of the blast wheel motors have been triggered by overload, they can be switched on again after a short cooling down period.

8. Selection of abrasive

The Blastrac blast cleaning machines are designed and built to operate with **Blastrac abrasive**.

Blastrac abrasive has a very high quality and has the rebounding ability required for the efficient use of the machine. The selection of abrasive is very important since this is the material to carry out the surface treatment.

Media nr. 2

Is often used when the surface is only subsequently sealed.

- creates fine profiles, e.g. on vacuum concrete and non-glazed tiles
- removes thin layers of rust on steel surfaces
- removes thin layers of paint

Media nr. 3 Abrasive S330

- creates a fine to medium texture on concrete.
- removes glazing from tiles prior to subsequently coating with antiskid floor sealing
- removes old impregnations and coatings about 1 mm thick

Media nr. 4 Abrasive S390

Standard abrasive, suitable for about 50-60 % of all applications. Creates a medium profile on concrete. Fulfills the same purpose as Media No. 3 when a higher speed of the machine is required, e.g. on asphalt, in order to keep the thermal load low.

- removes laitance from new concrete
- roughening of smooth concrete or natural stone
- removes coatings with a thickness of 1-3 mm
- cleaning of steel surfaces

Media nr. 5 Abrasive S460

This media is used to create a coarse profile or to increase the work speed in the case of surfaces hard to treat.

- removes sediments on concrete prior to coating
- removes thick paint coatings or rust from steel surfaces, bridges, tanks, etc.
- removes flexible coatings on parking house decks
- removes road markings and retexturing of asphalt and concrete roads

Media nr. 8 Abrasive SG25

Only as an addition to Media No. 3, No. 4 and No. 5 with maximum 30% content.

Media No. 8 should never be used without blending since otherwise the wear in the machine as a whole would increase disproportionately.

- removes polyurethane coatings
- removes adhesive remnants
- removes rubber deposits
- penetrates coatings hard to remove
- also suitable to be used on steel for extraordinary roughness

Please take into account that the use of incorrect abrasive increases wear.

Our service engineers have the experience to select the appropriate abrasive for the individual cases of application.

Please consult your local **Blastrac** customer service department if you have any questions about the selection of the best abrasive for your blast cleaning work.

9. Technical data

| | 2-30DS Global |
|--|---|
| Power consumption blast motor | 30KW |
| Electrical connection (voltage is given on the control box) | 400V / 50Hz 400V / 60Hz |
| Blast width | 800 mm |
| Drive speed | 0 – 33 m/min |
| Length | 1850 mm |
| Width | 980 mm |
| Height | 1150 mm |
| Weight | 750 kg |
| Noise level (under load) | 83dBa |
| Vibration level | 1.9 RMS Allows 13,9 hrs. of working with the mentioned equipment without having to use anti vibration precaution measures. |
| Dust hose connection | Ø150 mm |

The electrical diagrams of the electrical system are placed inside of the control panel. Design and specifications are subject to change without notice by Blastrac BV

IMPORTANT NOTES:

The indicated values are measured on new machines. Noise and vibration levels will vary in different circumstances. Area influences like open outside or closed inside space, ambient temperature, different surfaces to be treated, daily use, different tools or accessories, poor maintenance, etc. will give different values at all time and could increase the exposure level over the total working period.

The declared vibration and noise emission levels represent the main applications of the machine. The values may be measurements from a representative sample of technically comparable machinery. The values may be used for a preliminary assessment of exposure.

A precise estimation of the level of exposure to vibration and noise should also take in account the times when the machine is switched off or even running, but not actually in use. This may significantly decrease the exposure level over the total working period.

Identify additional safety measures to protect the operators from the effects of vibration and noise such as: proper and regular maintenance of the machine and the accessories, keeping the hands warm, provision of proper ear protection and organization of work patterns for example by using rotation schedules. The use of anti-vibration gloves could also decrease the effects of the vibrations transmitted.

Always wear hearing protection when working with this machine.

Employees surrounding the machine should always use hearing protection.

Old equipment contains valuable materials which are designed for re-processing. **The machine parts must not be thrown away in the normal household waste**, but should be disposed of at a suitable proper collection system, e. g. via your communal disposal location.

Despite the fact that this guide is made with care, Blastrac takes no liability for errors in the manual and the possible consequences. We are naturally very interested in your findings and additions.
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