



STREAMER
Premium Shotblasters

Operating Manual
S320E



Your Partner for Mobile Surface Preparation
IMPACTSAmericas.com



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Please note: The following safety instructions must be followed as shown in this operating manual. Failure to do so may result in hazard to health or possible death.

Chapter 1.0 Technical Data

- 1.1 Rating
- 1.2 Unit Specifications
- 1.3 Operative Range and Correct Usage
- 1.4 Stand-by Power Supply (Generator)
- 1.5 Advice for Operator of the Blast Machine
- 1.6 Machine Type Designation

1.1 Rating

Machine:	IMPACTS Blast Machine
Machine-Type:	S320E
Manufacturer:	IMPACTS Americas 1385 Bungalow Dr. Morris, IL 60450 U.S.A.

1.2 Unit Specifications

	<i>Machine S320E</i>	<i>DC 3324 Dust Collector (recommended)</i>
Length	71 in. / 1800 mm	50 in. / 1285 mm
Width	18 in. / 450 mm	31.5 in. / 800 mm
Height	39.5 in. / 1000 mm	47.5 in. / 1210 mm
Weight	705 lb. / 320 kg	730 lb. / 330 kg

Connected loads of the electrical system: 1285 x 800 x 1210

Power	15 HP / 11 kW	7.5 HP / 5.5 kW
Electrical Connection	480 V/60 Hz, 32A / 400 V/50 Hz, 32A	400 V/50Hz, 16A or

1.3 Operative Range and Correct Usage



The blast machine is designed to be used on clean, dry, horizontal surfaces without any obstacles. The machine cannot be used for any other purpose. The manufacturer will not be held liable for damages resulting from incorrect usage. In cases of wrong usage, the user will assume all risks and damages.

1.4 Stand-by Power Supply (Generator)



If the blast machine is connected to a generator, the generator must be operated in accordance with the current VDE directives (this applies especially to the protective earth conductor) in order to ensure that all safety devices are functioning and are able to eliminate possible damage to electrical components.

1.5 Advice for Operators of the Blast Machine



During the operation of the machine, it may be possible to exceed the acceptable noise levels of 85 dB(A). This is dependent on various locations and circumstances. When the noise level is 85 dB(A) or more, the machine operator and the persons working near the machine must wear sound-insulating devices.

1.6 Machine Type Designation

Machine Type:	S320E
Unit / Designation:	IMPACTS Blast Machine
Working Width:	12 in. 320mm
Drive:	Progressively adjustable 1-98 ft/min 0-30 m/min
Blasting Capacity:	Up to 2,153 SF/hr 200 m ² /h
Abrasive Consumption:	~100 g/m ²
Dust Hose Connection:	5 in. / 130mm
Recommended Dust Collector:	IMPACTS DC3324

Chapter 2.0 Safety Instructions

- 2.1 Explanation of Warnings and Symbols
- 2.2 Organizational Measures
- 2.3 Personnel Selection and Qualification
- 2.4 Safety Precautions Applicable to Different Operating Conditions
- 2.5 Repair Work, Maintenance Activities, and Default Repair on the Job Site
- 2.6 Definition of the Safety Off Position
- 2.7 Dangerous Aspects of the Machine
- 2.8 Electrical Engineering Regulations
- 2.9 For Special Attention

2.1 Explanation of Warnings and Symbols

The following symbols are used in the operating instructions to highlight areas of particular importance:



Operational Safety

This symbol will be shown in these Operating Instructions next to all safety precautions that are to be taken in order to ensure prevention of injury. Follow these instructions and take special care in these circumstances. In addition to these instructions, the general safety precautions and the local accident prevention guidelines also should be followed. Please check if there are special regulations for the particular job site.



Safety Goggles/ Ear Protection

Information, instructions, and restrictions with regards to possible risks of personal injury or extensive damage to materials.



Electrical Warning

Warning against dangerous voltages.

2.2 Organizational Measures



The Operating Instructions are to be kept near the machine and must be reachable all the times!

In addition to the Operating Instructions, general and legal regulations regarding accident prevention and environmental protection must be indicated every time.

Such duties may, for example, relate to the handling of hazardous substances or to the provision and wearing of personal protection equipment as well as compliance with local traffic regulations.

The Operating Instructions must be supplemented by instructions including the duty to supervise and report relating to particular local working practices; for example, work organization, work procedures, and personnel allocation.

Personnel working with the machine must read the Operating Instructions before starting the work, in particular. Chapter 2 "Safety Instructions." This must be done before starting any work with the machine. This applies to certain activities such as setting up the machine, carrying out maintenance work, or training staff to work with the machine.

From time to time, the working practices of the staff should be checked regarding awareness of safety and hazards.



Personnel must tie back long hair and not wear loose clothing or any jewelry. There is risk of injury in getting stuck or being drawn into moving machinery. Use personal protection equipment whenever necessary and required by regulations!

Take notice of all safety and hazard notices on the machine. They must be kept complete and legible.



If safety-critical changes occur to the machine or its performance, the machine must be shut down immediately! The cause of the fault must be determined immediately and be repaired before starting work again.

Changes, add-ons, or conversions which might have an influence to the safety of the machine must not be undertaken without the permission of the manufacturer. This applies in particular to the fitting and adjustment of safety devices and to welding on major and load bearing parts.

Spare parts must always comply with the technical requirements and the specification of the manufacturer. Original spare parts by the manufacturer are guaranteed compliant.

Inspection intervals and intervals for recurring checks specified in these Operating Instructions must be followed. At the same time, it is necessary to meet all legal requirements. To perform maintenance work correctly, it is important to be equipped with proper tools for the task in question.

The location and the operation of fire extinguishers must be made known at each job site. Take note of the facilities for fire reporting and fighting fires!

2.3 Personnel Selection and Qualification

Fundamental Duties



*Only trained personnel can operate and perform work on the machine. **Note the statutory minimum age!** Clearly specify the responsibilities of personnel for operation, setup, service, and maintenance work.*

Clearly define the machine operator's responsibilities regarding traffic safety regulations and empower him/her to decline instructions from third parties who are not complying with the safety requirements.

Personnel being trained or individuals testing the equipment must always be supervised by an experienced operator.



Work on the electrical parts of the equipment may only be undertaken by a skilled electrician or by a trained person under the guidance and supervision of a skilled electrician in accordance with the electrical engineering regulations.

2.4 Safety Precautions Applicable to Different Operating Conditions

Avoid any method of working that impairs safety! All precautions have to be taken. The machine must only be used in a safe and functional condition.



Only operate the machine when all safety devices and related safety equipment, e.g. detachable safety devices, emergency stops, and suction devices, are present and operational!

The machine has to be checked visually at least once a day for any damage and defects.

In the event of operational malfunctions the machine must be shut down immediately and secured. The error must be rectified before starting the machine again.



Secure the work area around the machine in public areas providing a safety distance of at least 7 ft./ 2m around the machine.

Default must be rectified immediately!

Start up / switch off operations and control devices have to be handled in accordance with the Operating Instructions.



All persons in the proximity of the machine must wear safety glasses with lateral protection as well as safety shoes. Ear protection may be required. The operator is required to wear close fitting protective clothing.

Use only extension cables for extending the main cable that are sized and marked in accordance with the overall power consumption of the machine following valid VDE and local guidelines.

Before starting the machine ensure that no person in the job site can be endangered when the machine starts running.



Do not switch off or remove the exhaust and ventilation devices when the machine is running!

2.5 Repair Work, Maintenance Activities, and Default Repair on the Job Site

Mechanical Service Work



These activities can only be undertaken by qualified personnel. Please follow any special safety instructions in the various chapters on servicing the machine (see Chapter 7).

Before starting any servicing work on the machine, put the machine in the Safety off position (as described in Chapter 2.6) in order to prevent the machine from being switched on accidentally.

Adjustments, servicing, and inspection work and inspection intervals specified in these Operating Instructions as well as any information on the replacement on parts and systems of the machine must be undertaken and/or complied with.

The operator must be informed of any maintenance or repair work done to the machine.

Startup and shut off procedures must be done in accordance with the Operating Instructions during all work related to the use, repair, and adjustment of the machine. The repair personnel must also be aware of the safety devices during inspection, maintenance, and repair.



The machine must be shut off completely for repair or maintenance work. Please disconnect the main plug in order to prevent the machine from being switched on accidentally.

The dust collector bin must be emptied before transportation. Please handle in accordance with the regulation how to dispose the dust and make sure that you meet the local regulations. Do not use any aggressive cleaning materials! Use only lint-free cleaning cloths.

Always remember to tighten any screw connections that are undone during servicing and maintenance work!

If safety devices need to be dismantled during setting up, servicing, or repair work, these safety devices must be reinstalled and inspected immediately after completion of the service.

Make sure that process materials and replacement parts are disposed of safely and in an environmentally-friendly manner.



Work on the electrical parts of the equipment may only be undertaken by a skilled electrician or by a trained person under the guidance and supervision of a skilled electrician in accordance with the electrical engineering regulations.

Make sure that electrical components used for replacement purpose comply with the original parts and are correctly adjusted if necessary.

2.6 Definition of the Safety Off Position

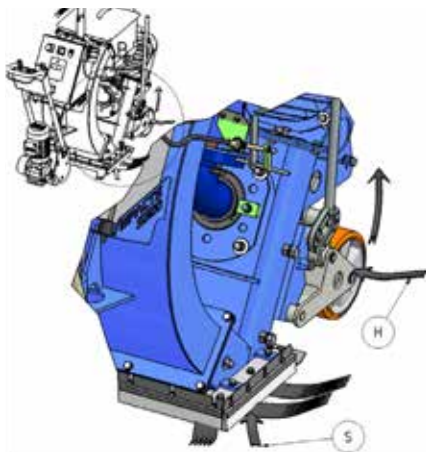
The safety off position is the position of the machine when it cannot generate any hazard. Setting the machine in the safety off position means:

1. Switch off the blast machine.
2. Switch off the dust collector.
3. Wait for standstill of all drives.
4. Pull out main plugs.
5. Secure the machine against accidental start up.

2.7 Particular Dangerous Aspects of the Machine



Every machine not used according to the regulations may be hazardous for personnel during operating, setting-up, and service. The operating authority is responsible for compliance with the safety regulations during operation and maintenance of safety devices supplied with the machine as well as the provision of appropriate additional safety devices.



S: Moving Parts (Shot)

Abrasive leaves the blast housing at high speed!

H: Turning Parts (Wheels)

Lift and tip the machine only when it is in the Safety Off position!

It is not allowed to stay within the working radius of the machine!

2.8 Electrical Engineering Regulations



Work on the electrical parts of the equipment may only be undertaken by a skilled electrician or by a trained person under the guidance and supervision of a skilled electrician in accordance with the electrical engineering regulations.



Use only extension cables for extending the main cable that are sized and marked in accordance with the overall power consumption of the machine following valid VDE and local guidelines. In case there is any question, ask the manufacturer or a skilled electrician.



The electrical parts of the machine must be inspected regularly. Please note in particular the specified recurring inspections according to BGV A3 or local regulations. Defects such as loose connections or scorched cables must be rectified immediately. Call a skilled electrician or the IMPACTS customer service.

If work on live parts is necessary, a second person must be deployed who can pull out the main plug in an emergency. The working area must be sealed with a red and white safety chain and a danger sign. Use tools that are insulated against voltages.

Only start work once you are familiar with the electrical engineering regulations that apply to your area.

Only use voltage seekers that comply with the regulations when troubleshooting. From time to time, check voltage seekers to ensure that they are operationally efficient.

2.9 For Special Attention

Use only proper and default free tools for your work. Damaged tools have to be repaired immediately or be replaced.

Use safety equipment and clothing (e.g. safety glasses, safety shoes, safety gloves) during operation of the machine at all times for your safety.

Please instruct your operators and the repair personnel about the following points:

- Greasing, cleaning, and all repair work is only allowed if the machine is in the safety off position (see Section 2.6).
- No one is allowed to open or remove safety covers while the machine is running.
- Replace all safety covers and safety devices after cleaning, repair, and maintenance work.
- Do not touch moving parts or walk into the working path of the machine.
- Before start up of the machine after any cleaning, repair, or maintenance work, ensure that no person in the working area could be endangered by the machine.

Chapter 3.0 General Information

- 3.1 Operative Range
- 3.2 Scope of Supply
- 3.3 Description of the Machine
- 3.4 Operating Elements
- 3.5 The Wheel Kit
- 3.6 The Separator
- 3.7 The Traction Drive
- 3.8 Base Seals
- 3.9 Abrasive Media
- 3.10 Selecting Abrasive Media
- 3.11 Care and Maintenance

3.1 Operative Range

The IMPACTS blast machine S320E 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 thoroughly removes surface contaminants, coats of paint, sealants, and thin coatings.

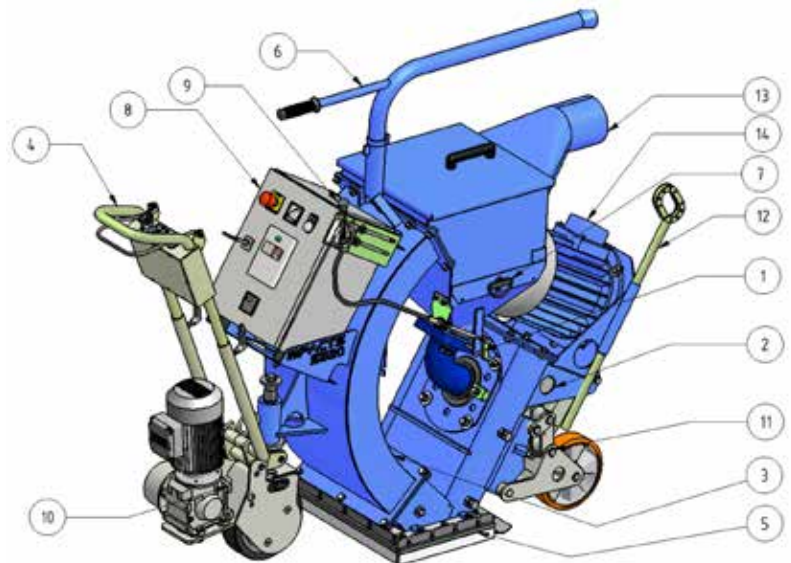
A suitable filter unit must be connected to the machine in order to separate the dust from the abrasive. A specially designed dust collection system ensures dust-free operation of the machine and clean air at the workspace. IMPACTS recommends the DC3324 to work in conjunction with the S320E.

3.2 Scope of Supply

- Blast Machine (S320E)
- Dust Collector DC3324 (optional)
- Dust Hose (50 ft./15.24 m)
- Manual (1)
- Maintenance Box (optional)
- Magnetic Broom (optional)

3.3 Description of the Machine

1	Abrasive Feeding
2	Side Force Wheel Housing
3	Rebound
4	Combination Operation Handle
5	Base Seal
6	Cable Guide
7	Separator Tray
8	Control Panel
9	Abrasive Control Lever
10	Traction Drive
11	Toggle Lift
12	Lever for Toggle Lever Lift
13	Separator
14	Wheel Motor

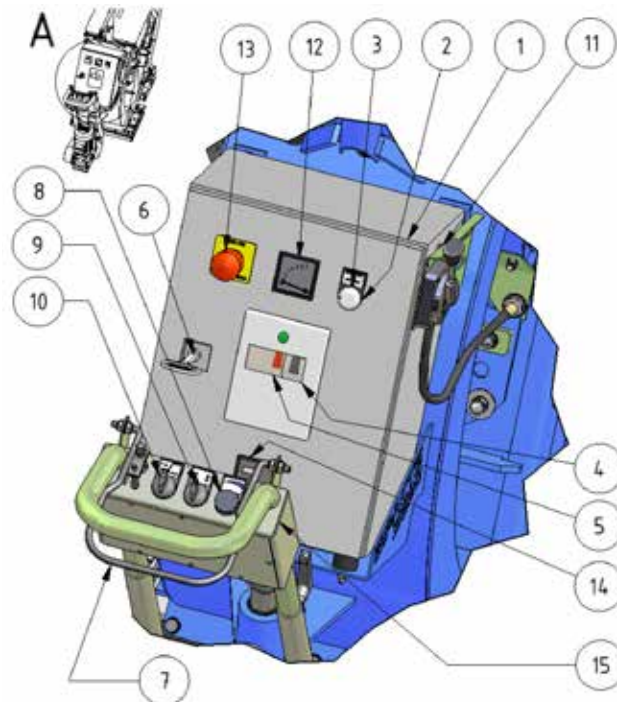


The blast wheel method is a revolutionary invention based on a simple principle: After mechanical pre-acceleration, the abrasive is thrown onto the surface at high speed by the blast wheel. Once the abrasive has impacted the surface it rebounds into a rebound plenum. The rebound plenum deflects the abrasive into an air current separator. In this location, dust and other contaminants are removed from the abrasive so that only abrasive containing a very small amount of dust is falling back into the abrasive storage hopper to reflow to the blast wheel.

3.4 Operating Elements

The Control Panel contains all controls and instruments used for supervision and control of the machine.

- | | |
|----|----------------------------------|
| 1 | Control Panel |
| 2 | Key Button Controls (ON) |
| 3 | Control Light |
| 4 | Switch Wheel ON |
| 5 | Switch Wheel OFF |
| 6 | Control Panel Key |
| 7 | Dead Man's Handle Traction Drive |
| 8 | Traction Drive Control |
| 9 | Switch Forward-Backward |
| 10 | Overdrive Switch |
| 11 | Abrasive Control Cable |
| 12 | Ammeter (21 Amp Max.) |
| 13 | Emergency Stop Button |
| 14 | Hour Meter |
| 15 | Comb. Lifting and C-Handle |



Key Button Controls ON, Control Light

Pushing the Key Button „ON" (2) will switch the controls on. Control light inside Button (3) lights up.

Switch Wheel ON OFF

Pushing button (4) (I) the wheel motor will start up. Pushing button (5) (O) the wheel motor will stop.

Ammeter

The ammeter (12) shows the load consumption of the blast wheel motor. When switching on the motor the current value is high (starting current peak), for no-load current and operating current please see the following values.

Machine	Non Load Current	Operating Current
S320E	Approx. 7 A	max. 21 Amp

Hourmeter

The hour counter (14) shows the sum of the actual working hours performed by the blast wheel.

Switch “Overdrive“

This switch (10) bypasses the drive speed control and the machine will move at max. speed.

Dead Man Handle

The switch (7) lever below the control handle serves for controlling the drive motor. Actuating the switch lever upwards closes the power circuit to switch "ON" the drive motor. When the lever is released, the drive motor switches "OFF" (Dead man's handle).

Speed Control

The operation speed is set by a Potentiometer (8). Although this indication does not allow direct reading of the actual speed, it shows comparing numbers allowing the operator to set the appropriate speed.

Forward Reverse Switch Traction Drive

This switch (9) controls the direction of the blast-machine. Position "2" - Blast cleaning direction – movement is backwards.

Emergency Stop

Pressing the emergency shutdown button (13) switches off immediately, interrupts power supply to all machine components.

The Abrasive Control Valve

To regulate the flow of abrasive to the blast-wheel there is a magnetic-valve (3) fitted between Storage-Hopper (1) and feed spout (2).

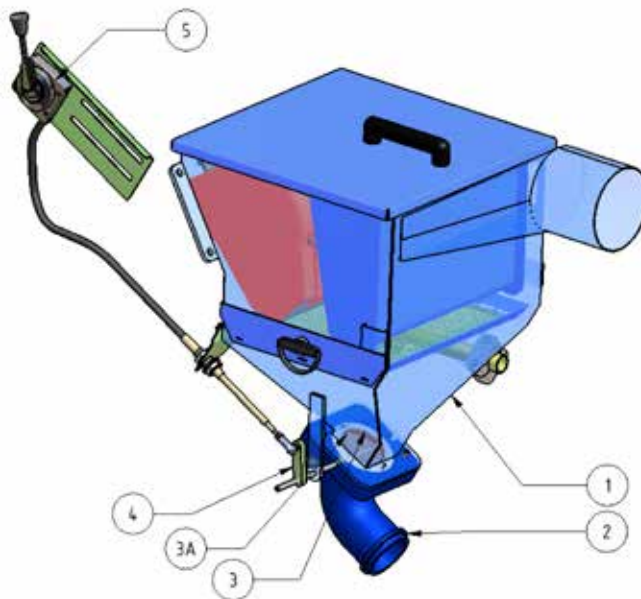
This valve has a turnable shutter (3A) that is linked to a lever (4) controlled by the control cable (5).

Changing the angle of the shutter position results in a different amount of abrasive flowing to the blast wheel. Feeding more abrasive is causing more work means higher load on the blast-wheel motor.

Load on the motor is indicated by the Ammeter.

Do not load more abrasive than recommended for the S320, the max load is at 21 Amp.

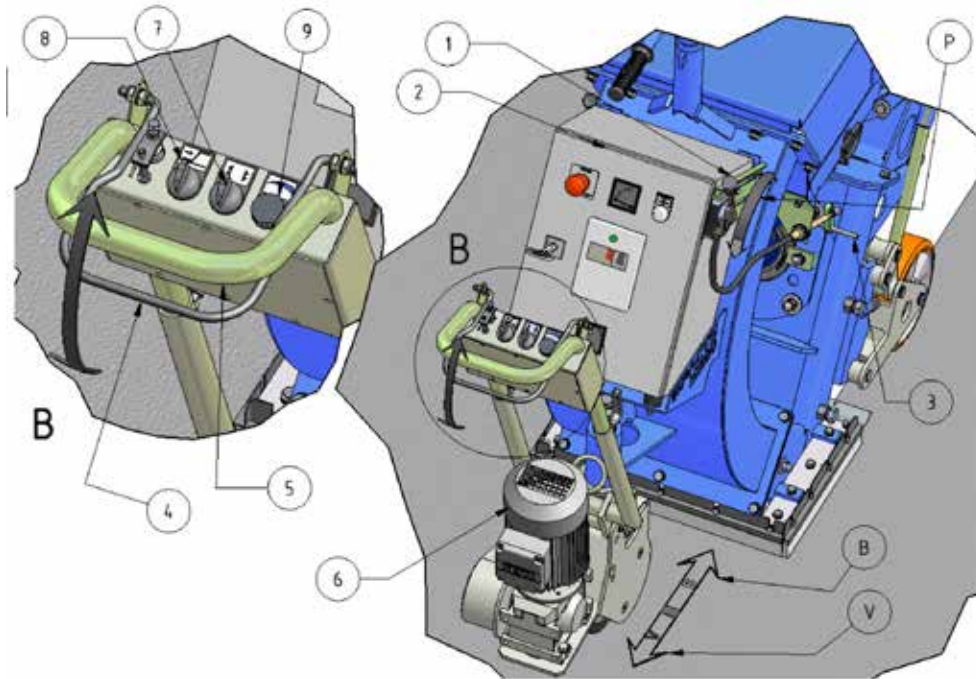
Higher load will cause the motor to fail or damage of the motor.



Abrasive Control Lever

This Lever (1) is located on the control panel (2) and regulates the magnetic valve (3) to control the flow of abrasive towards the blast wheel.

The valve is hand-operated and can be set to each amount of abrasive throughput by changing the lever position. Pulling (P) it forward will open and pushing will close the magnetic valve. (Max. 21 Amp. allowed.)

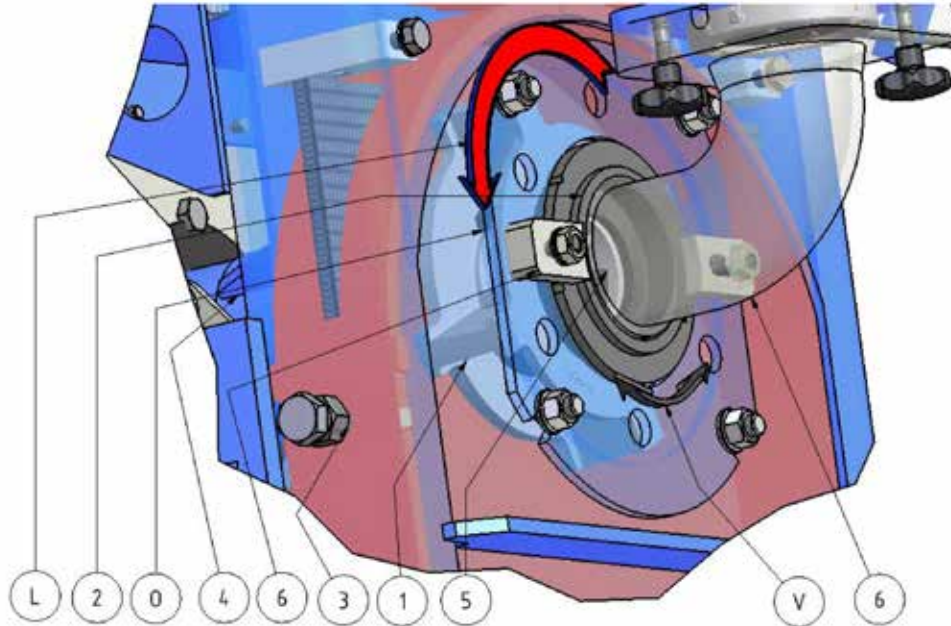


The Dead Man's Handle

The switch lever (4) below the control handle (5) serves for controlling the drive motor. Actuating the switch lever upwards closes the power circuit to switch on the drive motor. Depending on the setting of the selection-switch (7) the machine will move forward or backward. The speed depends on the setting of the speed control (overdrive (8) not switched). When this lever is released, the drive motor switches off (dead man's handle). Blast-operation direction is (V) (B) is used to move the machine but can't be used to blast the surface.

The Wheel Kit

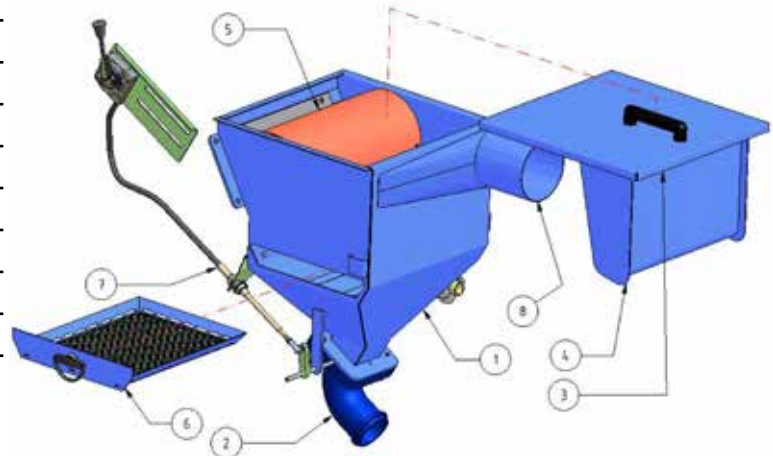
The heart of every blast-machine is the blast wheel (1) this will throw the abrasive to the surface to treat, using centrifugal forces. The blast wheel is placed in a side force wheel housing (2) protected with replaceable wear plates (3). The blast wheel is driven by a electric motor via. a belt drive and mounted on a bearing unit (4). The correct rotation of the S320 blast wheel is CCW. (L)



The center of the blast wheel shows a pre-accelerator, called impeller (5) feeding dosed quantities of abrasive onto the blades of the turning blast wheel. On top of this is the control cage (6) which, once it is carefully set, regulates the direction of the abrasive flow. The Control Cage, held by two clamps needs to be adjusted (V) so the blast pattern shows to the center of the machine. Turning the control cage CCW will move the Blast Pattern to the right and turning it CW will move the blast pattern to the left.

3.6 The Separator

- | | |
|---|--------------------------|
| 1 | Separator Housing |
| 2 | Feed Spout |
| 3 | Separator Lid |
| 4 | Baffle Plate |
| 5 | Deflector |
| 6 | Wire Mesh Tray |
| 7 | Control Lever Mag. Valve |
| 8 | Hose Connector |



The separator (1) is mounted to the end of the rebound plenum. The deflector (5) and baffle plate (4) will stop the reflected abrasive.

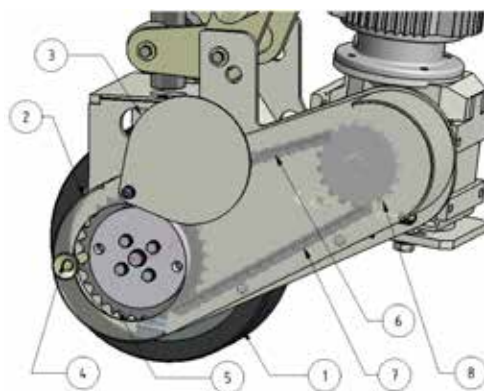
The filter, connected to the hose connector (8) will generate an appropriate airflow within the separator so this device will separate dust from abrasive.

The abrasive drops back to the storage where it has to pass a wire mesh tray (6). This tray (6), fitted to prevent any coarse contaminants from getting into the blast wheel. In order to clean the wire mesh tray it can be removed from the side.

Out of this storage section, the abrasive runs via a magnetic control valve (7) and feed spout (2) into the blast wheel.

3.7 The Traction Drive

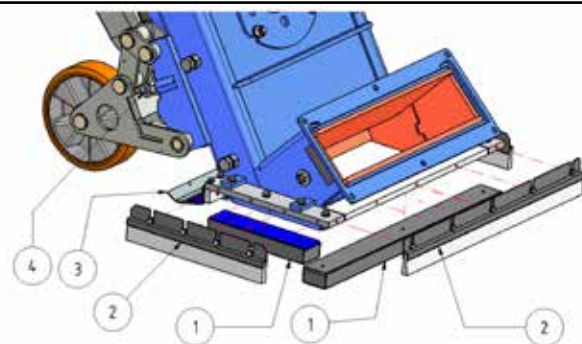
- | | |
|---|----------------------|
| 1 | Traction Drive Wheel |
| 2 | Chain Guard |
| 3 | Chain Guard Cover |
| 4 | Quick Release Pin |
| 5 | Drive Sprocket |
| 6 | Chain Link |
| 7 | Chain |
| 8 | Motor Sprocket |



The S320 is driven by a 0,55 kW electric drive motor. The power is transmitted via a chain drive. The drive wheel (1) and the Drive Sprocket (5) are not linked rigidly. The transmission is built from the traction drive wheel (1), sprocket (5) and chain (7). Drive wheel and drive wheel sprocket are not linked direct only the quick release pin (4) will link these parts so the energy gets to the drive wheel. Note: They are only linked after insertion of the quick release pin (4).

3.8 The Base Seals

- | | |
|---|----------------|
| 1 | Magnetic Seal |
| 2 | Brush Seal |
| 3 | Tail Seal |
| 4 | Adjuster Screw |
| 5 | Magnet Holder |
| 6 | Seal Plate |



On the front and side are magnetic seals (1) surrounded by brush seals (2). On the rear you will find a seal called tail-seal (3) this seal slides over the surface and hinders abrasive getting out of the blast area.

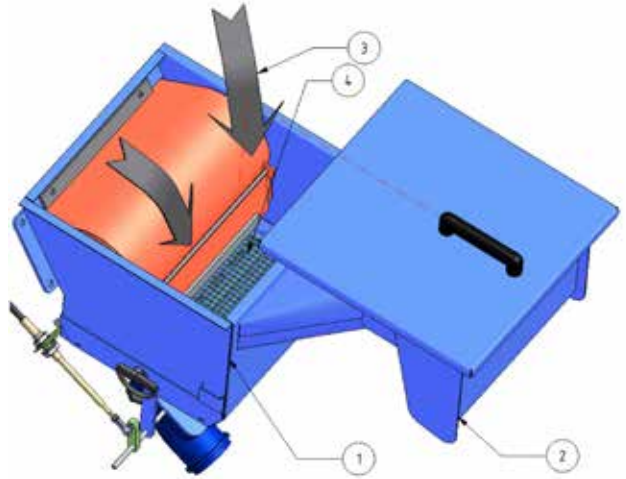
All seal should seal against abrasive spray. The correct setting of the magnets is 8-12mm over floor depending on the application, also very important for the best function of the machine. The adjustment is done by set screws on the traction drive and the rear (4).

3.9 Abrasive Media

In order to operate IMPACTS blast machine S320 you need hardened, spherical abrasive. The machine S320 has been especially designed to be operated with IMPACTS abrasive.

The IMPACTS abrasive is of very high quality and owns the rebounding ability required for the efficient use of model S320. The selection of the abrasive is very important since this is the material to carry out the surface treatment.

Take of the lid (2) from the separator (1) assure wire mesh tray (4) is in place and fill up abrasive (3) distributed equal up to the bottom of the mesh. Check occasional function of the deflector shutter.



3.10 Selecting Abrasive Media

Media IMPACTOR S 290

Applications:

- Creates fine profiles and is often used when the surface is only subsequently sealed, for example, on vacuumed concrete or for the removal of thin layers of paint on non-glazed tiles

Media IMPACTOR S 330

Applications:

- Creates a fine to medium texture on concrete
- Removes glazing from tiles prior to subsequently coating with anti-skid floor sealing
- Removes old impregnations and coatings about 1 mm thick

Media IMPACTOR S 390

Applications:

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, i.e. 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 IMPACTOR S 460

Applications:

Used to generate a rough profile and to improve work output

- Removes laitance from new concrete
- Removes thicker paints or rust from steel surfaces
- Removes flex coatings from parking decks
- Removes painted road lines
- Re-texturing on asphalt surface and concrete roads

Media IMPACTOR GL18

Applications:

Use only in addition to Media No. 3 and No. 4 with maximum 30% content. This media should never be used without blending, otherwise the wear in the machine would increase disproportionately.

- Removes polyurethane coatings
- Removes adhesive remnants
- Removes rubber deposits
- Penetrates hard to remove coatings
- Also suitable for use on steel

The effectiveness of the S320E is dependent on the rebound effect which ensures that the abrasive can be re-used.



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 IMPACTS customer service department if you have any questions about the selection of the best abrasive for your blast cleaning work.

3.11 Care and Maintenance

Special attendance and regular maintenance of the machine and its parts are imperative for functioning and safety.

In order to prevent unnecessary downtimes it is recommended to keep original spare and wear parts on stock as listed in the maintenance box.

A list of contents of the maintenance box is provided in Chapter 10 to enable the above mentioned work to be carried out quickly.



All persons in the proximity of the machine in operation must wear safety glasses with lateral protection and safety shoes. The machine operator must wear close-fitting protective clothing.

Chapter 4.0 Transportation

- 4.1 General Notes
- 4.2 Transport
- 4.3 Operation Conditions
- 4.4 Transport of the Machine by Vehicle
- 4.5 Machine Specifications

4.1 General Notes



Before the machine is used for the first time, IMPACTS authorized dealers offer a course to familiarize maintenance and operating personnel with all elements of the machine. We are not liable for damage caused by incorrect use of the machine by personnel not trained by IMPACTS.

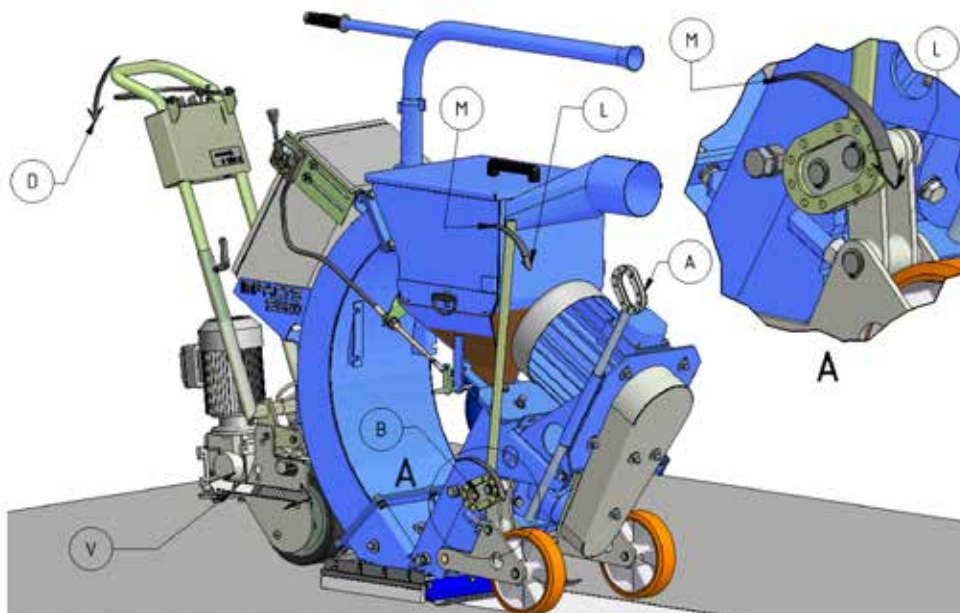
4.2 Transport

In order to transport the machine from a vehicle to the working area you need to lift the machine up. In order to do so use the Toggle Lever Lift at the rear.

Push the handle (A) on the top linkage (B) and pull the lever (A) towards direction (L) until the linkage is touching the bracket. To reverse pull up the lever towards direction M.

After the rear Toggle Lever Lift has been set into it's upwards position, push down the handle on the front and pull the machine towards direction V onto the jobsite.

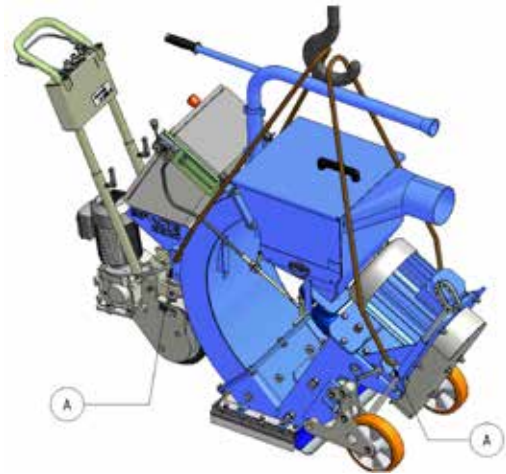
Never push the machine; this could cause the rear seals to become damaged.



Hoisting Equipment

When transporting the machine with hoisting equipment like a crane or lift, check the total weight permitted (see Chapter 1 Dimensions).

(See Figure on following page): Please use only appropriate, allowed, and qualified hoisting equipment (A) as well as ropes and chains (A). See Chapter 1 for the weight of the equipment or look on the serial plate of the machine. Do not fix any rope or chain (A) to the handle. Fix ropes and chains only at locations as shown in the next figure.



The handle of the machine is only fixed with two fixing screws and cannot be used for transportation, to fix ropes, or hoisting equipment!

The machine transportation is divided into:

- Machine S320E
- Filter unit (DC4025)
- General accessories

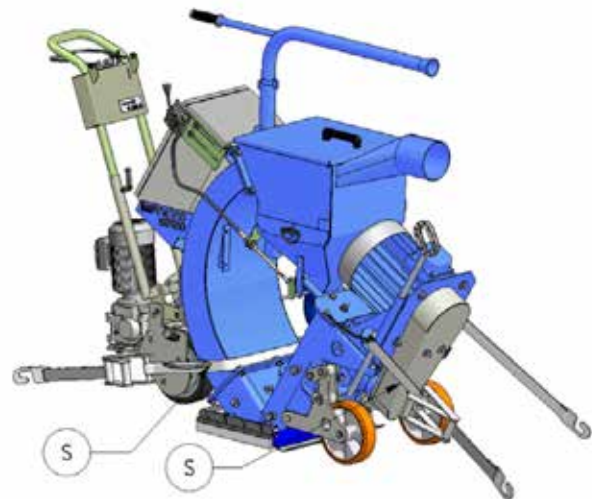


Remove all abrasives from the machine before transport. The machine may only be lifted as shown. Weight and dimensions are shown in Chapter 1 "Technical Data."

4.3 Transport of the Machine with Vehicles

When transporting the machine with vehicles, proceed in such a manner that damage due to the effects of use of force or incorrect loading and unloading is avoided. Use straps (S) to tighten the machine to the cabin of the vehicle. Use at least two straps, or tighten the machine with one strap to the wall of the vehicle. Make sure that all parts of the machine are secured.

To reduce the height of the machine, you can slide the handle down. In order to achieve this, you have to slacken the two fixing screws to slide the handle down. Do not forget to tighten the fixing screws again, otherwise you may lose them.



4.4 Operation Conditions

Check the surface before treatment for loose parts (stones, screws, etc.). The surface must be swept if necessary. Make sure that the machine can travel over all inequalities on the surface. Smaller inequalities, like weld seams or floor joints, will not effect the performance of the machine.

The machine must be operated in accordance with instructions given in Chapter 5 "Initial Operation."



Whenever the machine is not used for blasting, the abrasive valve must always be closed!

4.5 Dimensions

Main dimensions and unit specifications of the machine assembly are shown in Chapter 1 "Technical Data."

Chapter 5.0 Start Up

5.1 Preparing for Start Up

5.2 Start Up

5.3 Initial Operation

5.1 Preparing for Start Up

Before start up, ensure that all existing protective housings are fitted and the filter unit is connected correctly.



All persons in the proximity of the machine must wear safety glasses with lateral protection as well as safety shoes. The operator is obliged to wear close fitting protective clothing.

Carefully handle all plugs, cables, hoses, and operating devices. Avoid any contact with live wires.

Any work on the electrical system has to be done only by qualified specialists.

Check the surface before treatment for loose parts (stones, screws, etc.). The surface must be swept if necessary. Make sure that the machine can travel over all inequalities on the surface. Smaller inequalities, like weld seams or floor joints, will not effect the performance of the machine.

In order to avoid downtimes, a regular inspection is essential. Carry out the following checks before any start-up:

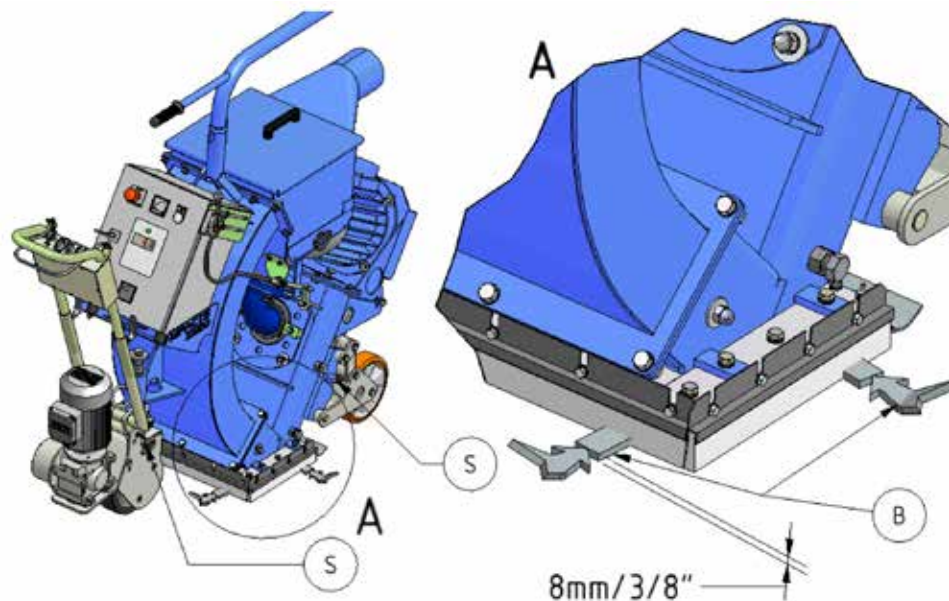
- Check whether all machine parts are assembled safely and correctly.
- Check all screws and other fasteners for tight seat.
- Check the abrasive storage hopper, the feed spout, and the blast wheel parts for foreign bodies and remove them.

- Check blast wheel blades, impeller, control cage, liners, and fastening screws for damages and wear.
- Check the magnetic and brush seals for wear.
- Check the tightness of the hose connections and the condition of the hose to the filter.
- Make sure the dust container of the filter unit is empty. Please comply with the local waste treatment regulations considering the removed material.
- Check the separator parts for wear and defects. Remove foreign bodies and dust deposits in order to prevent the separator from being blocked.
- Check the electrical connections for dirt and foreign body deposits.
- Check the electrical motors for dirt and other contaminants.
- Check the level of abrasive in the storage hopper. Fill up if necessary.



Before start-up operators and other personnel must be familiar with the safety regulations given in this manual.

- Place the blast machine and the filter unit onto the surface to be treated. Remove the quick release pin in order to drive the machine manually.
- Check the height adjustment (approx. 1/4-3/8 inch / 8-12 mm max.) of the blasting machine and the distance between magnet and surface.



- For the height adjustment, a 1/4"-3/8" sheet steel strip is shifted below the magnetic sealing (B). In order to adjust it you need to set the Set screws (1) and (2) (see also Chapter 7).
- Check the main power cable and the dust hose for damage. Replace or repair all damaged parts before starting the machine.
- Connect the machine to the filter unit with the dust hose. Use hose clamps at the connections.
- Check setting of the outlet damper on the filter. Some types of machines require lower airflows.

- Connect the power supply cable of the blast machine with the site supply or filter unit. Make sure that the correct electric supply is available (400V, 50Hz, 32A CEE type-plug).



Check the function of the ground failure circuit breaker by pressing the test button!

- Fill the separator equally with the selected abrasive (see Chapter 3) up to the bottom of the separator tray. The magnetic feed valve has to be closed while doing this.
- Check that the filter dust bin is empty. Comply with local waste treatment regulations considering the removed materials.

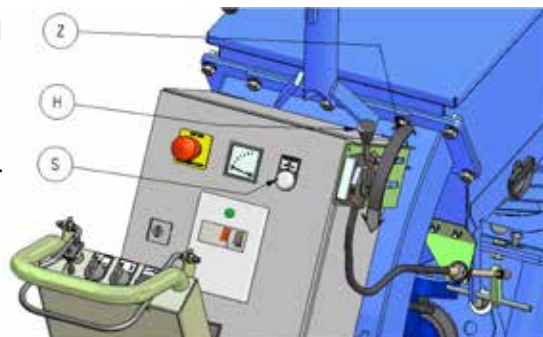
5.2 Start Up



All persons near the machine must wear safety glasses with lateral protection, ear protection as well as safety shoes. The operator is obliged to wear close fitted protective clothing.

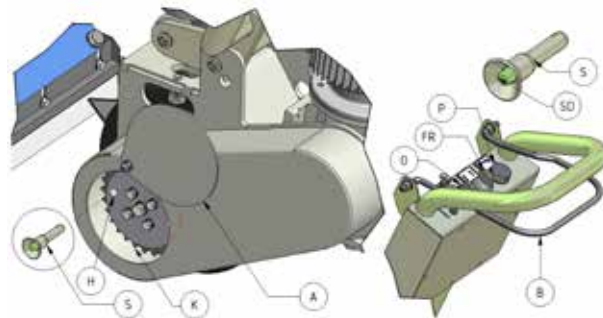
The start up of the blast machine and the filter unit should be done in the following order (see illustration):

1. Switch on the filtering unit.
2. Check that the magnetic valve is closed (black lever (H) in position (Z) "CLOSED"
3. Press the push button (S) "Controls ON".



Inserting the Quick Release Pin

1. Open the chain-guard cover (A)
2. Turn the Potentiometer (P) in lower 1-2 (low speed)
3. Check the Overdrive (O) not selected.
4. Switch the direction switch (FR) into forward or reverse.
5. Move the Quick Release Pin(S), button (SD) pushed, into the bore (H) of the sprocket hub, keep the button (SD) pushed.
6. Pull the lever (B) upwards. The sprocket (K) starts to turn.
7. Push the Quick Release Pin (S) further inwards, still keeping the button (SD) pushed.
8. Push inwards until the front ring of the pin (S) is touching the sprocket hub. The machine is now driven by the traction drive motor.
9. Close the chain guard cover (A) of the traction drive.



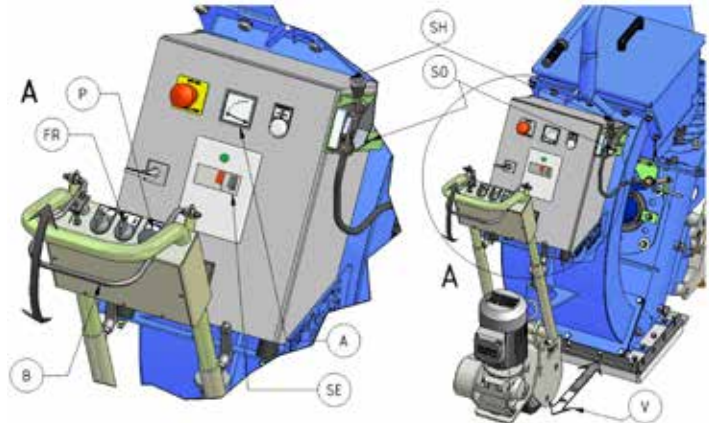
When blasting concrete the abrasive feed valve only may be opened when the blast machine is in forward motion! If the machine is at a standstill and the valve is opened deep grooves are blasted into the concrete surface within seconds.



Warning: when the blast head is lifted from the floor, abrasive will spurt out of the sides of the blast head at high speed. If the machine is moved with the blast head raised, the abrasive feed valve must be fully closed.

5.3 Initial Operation

1. Press the button (SE) "WHEEL ON" on the front of the panel. The wheel motor starts up.
2. Watch the Ammeter (A), 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.
3. When the motor reaches max. speed the amperage drops down to no-load-current.
4. If the ammeter indicates a high load consumption after having reached the idle-run speed, the magnetic valve may be partially open or another disturbance.
5. Find out the cause of the disturbance and, if necessary, contact your IMPACTS customer service engineer.
6. Set the direction switch (FR) to "Reverse" (Blast Direction (V)). Adjust speed by the Potentiometers (P).
7. Pull lever (B) upwards to start up the traction-drive.
8. When pulling lever (B) upwards, also pull lever (SH) towards direction (SO) so the feed valve opens and abrasive flows towards the blastwheel. Keep eyes on the Ammeter not exceeding 21 Amps.



BEWARE: When blasting concrete the abrasive feed valve only may be opened when the blast machine is in forward motion! If the machine is at a standstill and the valve is opened deep grooves are blasted into the concrete surface within seconds!

Advice:

When the machine is moving, pull the Combination Lever (SH) to operate the feed valve. Watch the ammeter to monitor the full load amperage (depending on the selected abrasive up to the operating current 21 Amp maximum).

An indication exceeding the full load value means overloading of the motor, whereas an indication below the full load value shows that there is not enough abrasive fed to the blast wheel. If necessary, re-adjust the cable to the magnetic valve or refill the hopper with abrasive.

After having approx. 2 ft. /1-2 m. blasted, close the abrasive valve, stop the machine and check the blasted surface.

If the blast pattern is irregular, it may be necessary to re-adjust the blast pattern (see Chapter 7 “Setting the blast pattern”) or select different speed for the machine.



Only alter the travel direction while the feed valve is closed.

Regularly dump the dustbin of the filter unit.

Do not overfill the bin to avoid dust exposure when opening the bin.

Comply with the local waste treatment regulations considering the removed material.

Chapter 6.0 Operation

- 6.1 Daily Operation
- 6.2 Information about the Chart Speed
- 6.3 Recommended Blast Paths
- 6.4 Turning Off the Machine
- 6.5 If Failure Occurs
- 6.6 Safety Shutdown
- 6.7 Restart
- 6.8 Proceedings Prior and After Longer Stoppage

6.1 Daily Operation

This operating manual has to be always with the machine at the working site!



*Only trained personnel can operate and perform work on the machine. **Note the statutory minimum age!** Clearly specify the responsibilities of personnel for operation, setup, service, and maintenance work.*

Instructions for daily operation of the blast machine:

- Before starting the operation, check daily whether all machine parts are assembled safely and correctly.
- Before switching on the machine, check that all safety covers are in the right position and that the dust collector is connected correctly.
- Use only a dust collector which that has the right suction power and offers an optimal dust separation.
- Treat all plugs, cables, hoses, and operating devices with special care. Avoid any contact with live wires.
- Check the surface to be treated for loose parts (Stones, screws, etc.) The surface must be swept if necessary. Remove all objects from the surface in order to avoid damage to the machine seals or serious damage to blast wheel and wheel-drive.
- Make sure that no vehicles, such as forklift trucks and other equipment run over the electric cable and the dust hose.

- When using the dust collector, make sure to comply with the health and safety regulations and the local waste treatment regulations considering the removed material.
- Perform regular inspections in order to avoid downtimes of your blast machine (see Chapter 7 "Maintenance").



All persons in the proximity of the machine must wear safety glasses with lateral protection as well as safety shoes. The operator of the machine is obliged to wear close-fitting protective clothing.

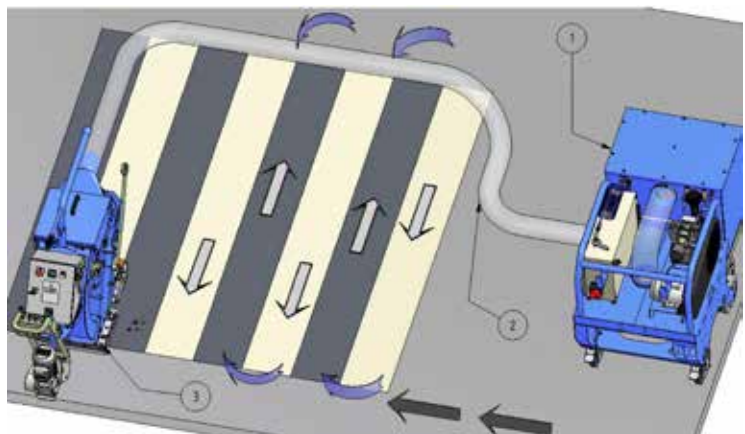
6.2 Information about the Chart Speed

The chart speed depends on the material of the surface to be blasted and the desired profiling. The correct chart speed can best be determined by observing the blasted surface and varying the speed during the blast cleaning process, for example:

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

6.3 Recommended Blast Paths

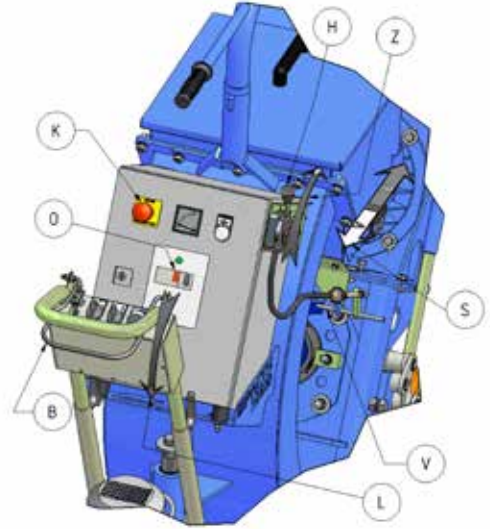
1	Filter Unit
2	Dust Hose
3	Blast Machine



- Follow normal start-up and operation of the blast machine as described in Chapter 5 "Initial Operation."
- Cut blast paths in parallel tracks in order to cover the entire surface completely and to keep the dust hose and electric cable untwisted.
- Connect the blast machine and filter with the dust hose.
- Check setting of the outlet damper on the filter.
- The illustration shows the correct placement of the dust collector and hose. The dust collector hose must not be confined in any way.
- Recommended blast paths always lead away from the location the filter unit and the power supply source.
- Be aware of the maximum length of the cable and dust hose during operation.
- Turn the blast machine around at the end of the path by first closing the feed valve. Then turn the machine and guide it back in an arc to place the machine next to the last blasted path. Repeat this procedure in order to complete the surface, always moving away from the filter toward the open surface.
- Finally, move the filter to the surface already blasted and finish the area where the filter was first located.

6.4 Turning Off the Machine

1. First close the feed valve by the handle (H), push this forward towards direction (Z).
2. Keep the traction drive switched on so the machine moves towards (S) as long as the feed valve (V) is not fully closed to assure no grooves blasted into the surface.
3. Release the traction drive actuator (B) so it swings back into its previous position (L). The Traction drive switches off and the machine stops.
4. Press the Wheel Motor Off Switch (O)
5. Switch off the control circuit by pressing button (K)
6. Finally switch off compressor and blower on the filter unit.



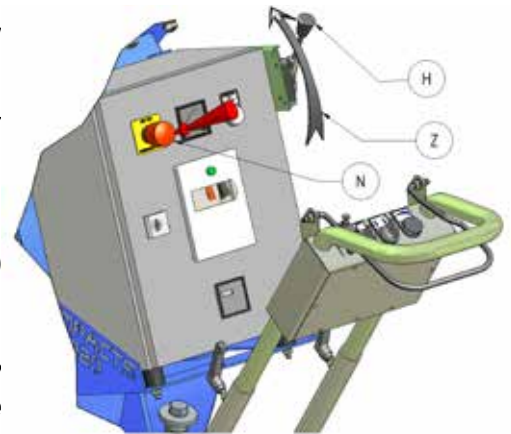
If the machine will not be used for an extended period of time, pull out the main plug. Store the machine and cover by a tarp.

6.5 If Failure Occurs

In a case of emergency, you can stop the machine immediately by pushing the emergency button (N).

In an emergency press immediately the RED EMERGENCY BUTTON (N) and afterwards close the Feed Valve pushing lever (H) towards Z.

To release the emergency switch, turn the red button and (or) pull it upwards.



Despite the following information, the local safety regulations are valid in any case for the operation of the machine.



The machine must be set into its "Safety Off Position" before starting any kind of maintenance or repair work. See Chapter 2 "Safety Instructions."

6.6 Safety Switch Off



The machine must be set into its "Safety Off Position" before starting any kind of maintenance or repair work. See Chapter 2 "Safety Instructions."

6.7 Restart

After a mechanical failure, please ensure that you find the reason of the failure before you restart the machine.

Leave the Emergency-Switch pushed down and bring the machine in the Safety-Off Position before you start to find out the failure.

If you can't find the failure or if you are unsure about the reason for the failure, please contact your IMPACTS contact person and ask for help.



Please be aware of the regulations for electric equipment such as BGV A3 and VDE-0701. These regulations describe the necessary considerations and actions after repair and changes on electrical Equipment (see Chapter 5 for "Startup of the Machine").



All persons in the proximity of the machine must wear safety glasses with lateral protection as well as safety shoes. Ear protection may be required. The operator is obliged to wear close-fitting protective clothing.

6.8 Proceedings Prior and After Longer Stoppage

Stoppage Longer Than 3 Months:

- Switch off the machine (see Chapter 6).
- Remove all abrasive out of the machine.
- Remove all abrasive from magnets.
- Clean the machine and cover with a tarp.
- Ensure that motors, cables, and plugs are protected against moisture, dust, heat, and shock.
- Protect bright parts of the machine and power pack with a preservative oil.

After Longer Stoppage:

- See Chapter 5 "Initial Operation."

Chapter 7.0 Maintenance

- 7.1 Recommendations
- 7.2 Maintenance and Inspection
- 7.3 Maintenance
- 7.4 The Blast-Pattern
- 7.5 Adjusting the Blast-Pattern and Control Cage
- 7.6 Adjusting Magnets and Seals
- 7.7 The Belt
- 7.8 Fitting Belts
- 7.9 Belt Tension
- 7.10 Taper-Lock Bushes
- 7.11 The Chain Drive
- 7.12 Fitting Sprockets
- 7.13 Fitting the Chain
- 7.14 Maintenance and Repair of the Chain
- 7.15 Adjust Chain Tension of the Traction Drive
- 7.16 Wear Parts
- 7.17 Replacing the Wheel Kit
- 7.18 Replacing Liners

7.1 Recommendations

Prior to any repair work on the machine and its drives, secure the machine against unintentional switch-on. Put the machine in its Safety Off Position as described in Chapter 2.



Failures due to inadequate or incorrect maintenance may generate very high repair costs and longer stoppage periods of the machine. Regular maintenance is essential.

- Safety and service life of the machine depend, among other things, on proper maintenance.
- 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 must be carried out at least yearly.
- Due to different working conditions it cannot be foreseen how frequently inspections need to occur for wear checks, inspection, maintenance and repair works. Prepare a suitable inspection schedule considering your own working conditions. Our specialists will be pleased to assist you with any issues you may encounter.



Sub-supplier's operating and maintenance instructions should be followed during service and maintenance. Highest attention should be paid when replacing electric parts and components.

7.2 Maintenance and Inspection

The following table will show recommendations about time, inspection, and maintenance for the normal use of the machine.

<i>Operating Hours / Time Period</i>	<i>Inspection Points & Maintenance Instructions</i>
12 hours — after repairing	Check function of all safety devices. Check all accessible screw connections for tight seat.
Every 3 hours	Check whether there is any foreign matter in the hopper, the feed spout, or in the blast wheel unit.
Daily — prior to operation	Check the hose connections for tightness and fixed seat. Check the hose to the filter for damages. Make sure that the dust bin of the filter has been dumped. Check blast wheel, feed spout, liners and fasteners for wear and damage. Check the separator parts for wear and defects. Remove foreign bodies and dust deposits. Check the level of abrasive in the storage hopper. Refill to bottom of wire mesh if necessary. Check the magnetic and seals for wear and replace if necessary. Check the electric connections for sediments of dirt or foreign bodies. Check the electric motor for dirt and other contaminants.
Yearly	Fully overhaul and clean the entire machine.

7.3 Maintenance

As already mentioned in Chapter 5 “Initial operation,” we recommend you make your first repair work on the machine with the help of an IMPACTS personnel. Using this recommendation, your maintenance personnel will have the opportunity to get an extensive training.

Only those repair works are described which occur within the context of maintenance or which are required to replace wear parts.



If you replace parts yourself for specific reasons, the following instructions and work sequence have to be observed:

- You should also stock all spare 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.
- Screws that have been removed must be replaced with those of the same quality (strength, material) and design.



Prior to any repair work on the machine and its drives, secure the machine against unintentional switching-on. Pull out the main plug in order to do this. Store the plug near the machine to avoid accidents.

7.4 The Blast Pattern

Abrasive leaving the blast wheel blades is not thrown in all directions. Scatter is restricted to an angle of about 55°. This is achieved through the use of a control cage which surrounds the impeller. The position of the window in the control cage determines the direction and HOT ZONE of the blast pattern.

Correct adjustment of the control cage and thus of the blast pattern is the most important factor for optimum working with the blast machine.

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

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

After each blast wheel repair work, switch on the blast wheel motor for a short period (without feeding abrasive) in order to find out whether the rotating parts turn freely and without vibration. After that, the blast cleaning procedure can be continued.

The blast wheel motor is designed for a long service life. Damages to the blast wheel motor can be detected by unusual noises or functional failure of the electric motor. In this case notify our service department.

7.5 Adjusting the Blast Pattern and Control Cage

In order to get a uniform and perfect blast pattern on the surfaces to be treated, the correct adjustment of the blast pattern is most important.

Prior to any maintenance or repair work on the machine and its drives, secure the machine against unintended switch-on. Put the machine to its Safety Off Position.

Incorrect adjustment of the blast pattern results in:

- Uneven cleaning (shadows on the right or left hand side)
- Extreme high wear (Wheel kit and the liners)

Four factors affect the blast pattern:

1. Rotation direction of the blast wheel:

The rotation direction of the blast wheel must correspond to the instructions on the housing (arrow indicating the turning direction).

2. **Worn tune-up kit:**

With increased wear of the Wheel Kit (impeller, control cage), the blast pattern will change

3. **Size of Abrasive**

The size of the abrasive affects the blast pattern. Every change of abrasive requires the blast pattern to be set or to be re-adjusted.

4. **Position of the Control Cage**

The correct adjustment of the control cage is most important to obtain an optimum blast pattern. The control cage has a lateral window. The position of this window determines where the abrasive is fed on the blast wheel blades and where it hits the surface to be treated. After changing the Wheel Kit, the adjustment of the control cage must be checked and re-adjusted. To do so, you need to create a blast pattern. The same applies for blasting on another type of surface.

Adjustment of the Control Cage

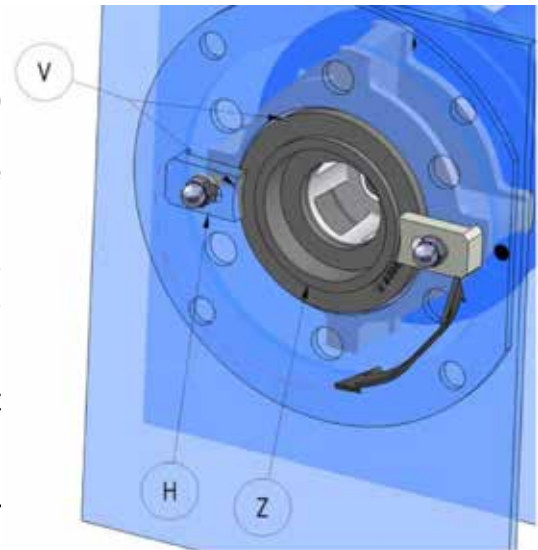
The adjustment is done as follows:

Slack the cage clamps (H) and turn the control cage (Z) into a pre-setting position. The cast grooves on the control cage show the position of the control cage opening. The feed spout remains in its former position.

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. Different types of abrasive have different throwing characteristics due to their different weights and frictional resistance. This explains why the blast pattern needs to be adjusted after presetting and testing.

After fitting new spares always, check the blast pattern in order to get best performance. This is the only way to grant economical work and to avoid unnecessary wear and repair costs.



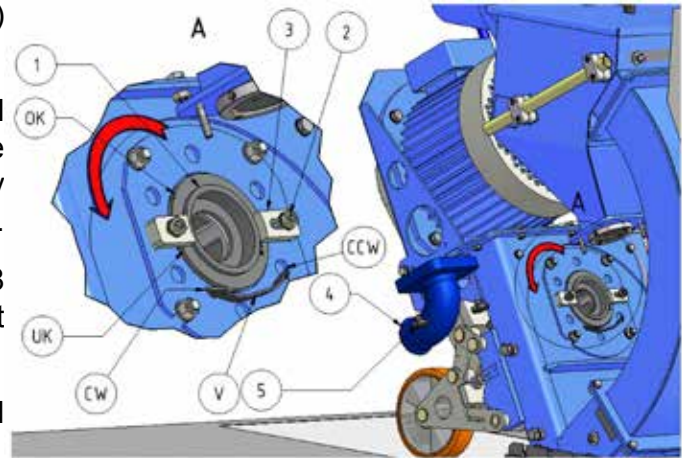
The adjustment of the blast patterns can be carried out as follows:

Determine the upper (OK) and lower (UK) window edges of the Control Cage (1).

Set the upper window edge (OK) of the control cage to imaginary 11.00 of a dial. Place the cage clamps (3) and fix them with nuts (2). Finally replace the feed spout (5) onto the control cage.

Move the blast machine on in direction (V) a 5-8 mm thick steel plate and blast for 45 seconds at full amperage without moving the machine.

Move the machine from the blast zone and carefully inspect the steel plate.

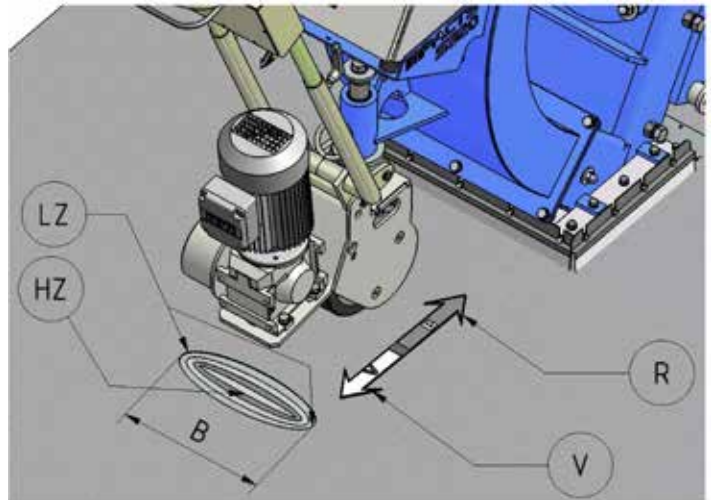


You will find the HOT ZONE on the blasted surface where the machine has developed the highest blast intensity. This ZONE is normally a little lighter and warmer than the rest of the blast cleaned area due to the heat that is generated by the impacts of abrasive. Adjust the control cage until the HOT ZONE (HZ) is exactly in the middle of the blast pattern. (B)

Now the blasting procedure can be started. When a concrete surface is to be blasted, check the blast pattern again after some meters and re-adjust slightly if necessary. The blast pattern will change with and increased wear of the tune-up kit and when the size of the employed abrasive is changed.

Hot Zones

You will find the Hot Zone on the blasted surface where the machine has developed the highest blast intensity. This Zone is normally a little lighter and warmer than the rest of the blast cleaned area due to the heat that is generated by the impacts of abrasive. Adjust the control cage until the Hot Zone (HZ) is exactly in the middle of the blast pattern (1).



- Now the blast procedure can be started. When a concrete surface is to be blasted, check the blast pattern again after some distance and readjust slightly if necessary. The blast pattern will change with and increase wear of the Wheel Kit when the size of the abrasive is changed.
- If the blast result shows strong blasting on the right-hand side and weak blasting on the left-hand side (shadows), turn the upper edge of the control cage clockwise (CW) for 2-4 mm.
- If the blast result shows strong blasting on the left-hand side and weak blasting on the right-hand side (shadows), turn the upper edge of the control cage counter-clockwise (CCW) for 2-4 mm.

- Adjust the control cage until the Hot Zone (HZ) is exactly in the middle of the blast pattern (1).
- Note: All descriptions are seen from the front into the blast wheel.



Never slacken cage clamps or try to adjust the control cage when the machine is in operation.

7.6 Adjusting Magnets and Seals

The adjusted height of the magnetic seals, parallel to the surface to treated, should be set equal at about 1/4 in. / 8 mm.

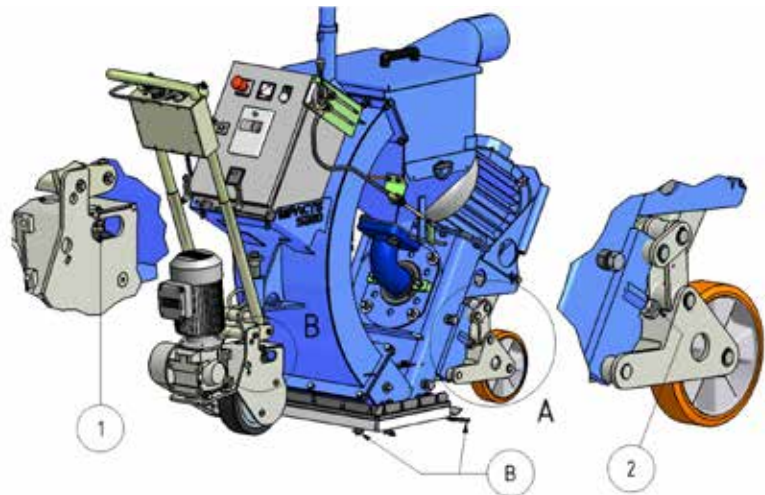
For the height adjustment an 8mm stainless-steel strip (C) is shifted below the magnetic sealing.

Front setscrew (1)

Quantity: 2

Rear setscrew (2)

Quantity: 2



Adjust the height with the setting screws until the correct distance of 8-12 mm has been set.

On the IMPACTS S320E, the adjustment is done by 4 setting screws (one screw (2) each at the rear wheels and two (1) on the inner side of the traction drive bracket).

The height of the brush seals should be maximum 1 mm above the surface. The adjustment is possible within the slots of the seal elements. The setting depends on the structure of the surface to be treated, in general the rougher the surface the lower the setting. Working on steel means to set it down as far as possible.

7.7 Belt Drive

The V-belt is designed for the installed drive power. Forcing the drive to grant a higher output by over tensioning the V-belt results in belt breaks, bearing damage, and thus lower efficiency. A low V-belt tension results in slippage causing an increased belt temperature and premature destruction of the V-belts.

Temperatures exceeding 70°C for a long period reduce the service life and performance of the V-belts. The grooves of the V-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 V-belts. Avoid any contaminations by oil, grease, or chemicals.

In order to grant a perfect output transmission, the V-belt drive needs continuous observation.

7.8 Fitting Belts



Remove the belt guard only when the blast wheel motor is at a standstill and the main switch of the blast machine is in Safety Off Position as described in chapter 2.

Release the tension of the V-belt drive by reducing the distance between the shafts of the blast wheel motor and wheel-bearing unit.

Insert the V-belt in the V-belt pulley grooves manually without forcing the belt.

Adjust the tension the V-belt by increasing the distance between the shafts of the blast wheel motor and the wheel-bearing unit as described next.

Fasten the required protection equipment has been fitted before.

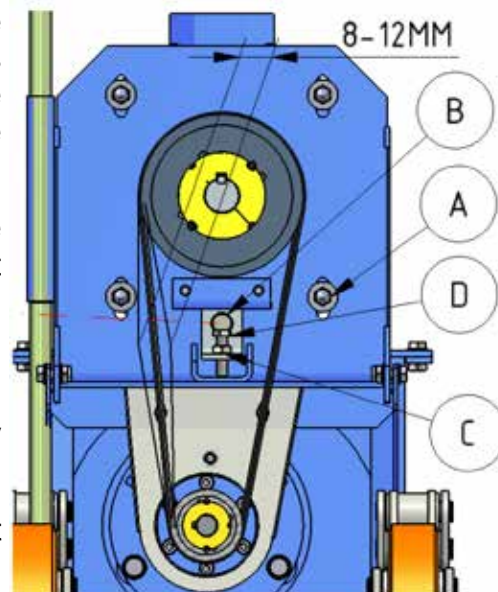
7.9 Belt Tension

To achieve a maximum power transfer and live time the correct setting of the belt tension is essential. Often belts are set with the wrong tension and fail before normal service time. Belts that are set with too much tension may cause bearing problems on motors or bearing units.

Check the correct pre-tension in accordance with the illustration by pressing on the belt. The distance the belt can be pressed down should be 4-6 mm. The displaced distance of the belt should be 8-12 mm.

To adjust the correct belt tension, slacken the motor fixing screws (A) (B) and the locknut (C). Adjust the belt tension by the adjuster screw (D) and tighten afterwards the locknut.

Finally, draw up the motor screws (A)(B) and fit the belt guard again.



7.10 Taper-Lock Bushes

Taper locks are used to shrink-fit hubs on shafts. Mounting and demounting only requires a screw driver DIN 911 (Allen key). Tightening and loosening is affected with the same threaded pins or screws.

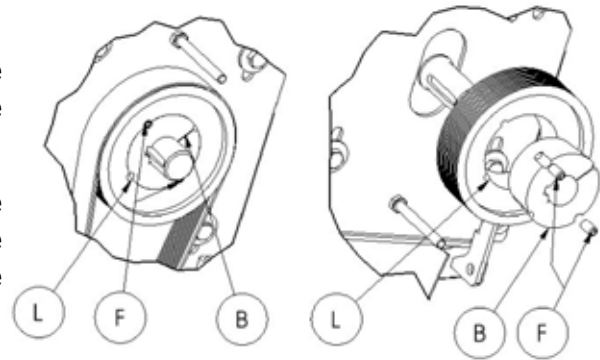
Taper locks are cylindrical on the inside, tapered on the outside, and slit longitudinally. The smaller bushes 2 and 3 have in the large face their cylindrical blind holes in parallel to the axis, which, however, are only, placed half in the bush material. The other halves of these blind holes are threaded and are placed inside the hub.

Threaded pins or screws are screwed to the stop in the boreholes using an Allen key. When the screws are tightened further using a certain amount of force the hub is drawn up to the tapered bush which is pressed onto the shaft with great force.

Demount

Demount the screws (F) in the belt pulley. Lubricate the thread and the tip of the screw and turn it into the bore (L) as shown.

Turn the screw until the taper lock (B) gets loose inside the pulley and the assembly is loose on the shaft. Take the pulley and the taper lock from the shaft.



Mounting

Assure that all contact surfaces are free from dirt and oil. Place the taper lock into the pulley. Lubricate the screws slightly and insert them into the respecting threaded holes.

Clean the shaft, shift the pulley with the taper lock, as one unit, onto the shaft, and position the assembly. Note, that first the taper lock is fixed on the shaft before the pulley reaches its final position on the bush.

Use an Allen key to fit the screws. Knock the frontal face of the bush lightly with a hammer to make sure that the bush is seated in the center of the pulley (use a mandrel to avoid any damages).

Now tighten the screws. Repeat the alternating hammering and tightening until all screws fully tightened.

7.11 The Chain Drive

The mounting, demounting, and repair work always needs to be done with appropriate tools. With these works, the prevailing safety regulations must be strictly observed.

Chain drives are relatively robust and reliable even under unfavorable operating conditions. Incorrect mounting and insufficient lubrication and maintenance can cause premature wear of the chain and the chain wheels.

Careful fitting of the chain drives and appropriate maintenance therefore both contribute to a long service life..

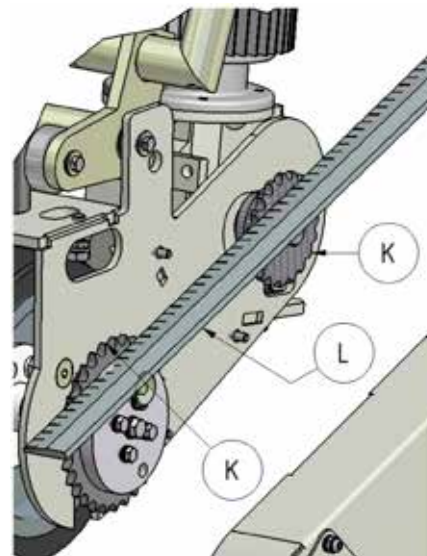


Remove the chain guard only when the drive motor is at a standstill and the main switch of the blast cleaning machine is locked (see chapter 2 "Safety off position").

7.12 Fitting Sprockets

Chain sprockets must be aligned. In order to achieve this, both shafts and the chain sprockets must be parallel and dimensioned according to the load.

Check the mounting precision by a ruler putted to the chain wheels. This has to be done several times with different chain wheel positions. Incorrect mounting makes the internal chain link plates press against the external link plates and accelerates the chain wear or even causes the chain wheels to lock up.

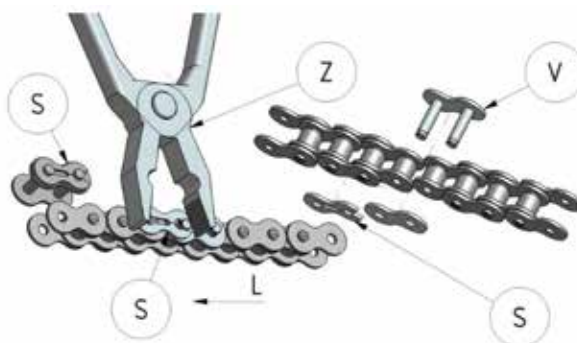


7.13 Fitting the Chain

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 two adjacent gaps between the teeth. Now close the chain using a chain 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.



Chain Links with springs:

- Their closed sides should point to the running direction (L) of the chain (S). Slide in the link adapter (V) and place the link plate opposite place 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 reverse order.

7.14 Maintenance and Repair of the Chain

A chain drive needs little maintenance only if the correct chain has been selected, is mounted correctly for the application, and is not lubricated with grease. A chain guard protects the drive chain. The chain guard prevents excessive contamination and prevents accidents.

The chain drive needs to be cleaned every three months. On these occasions, check the alignment of the chain sprockets and the chain tension. 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 a similar substance.

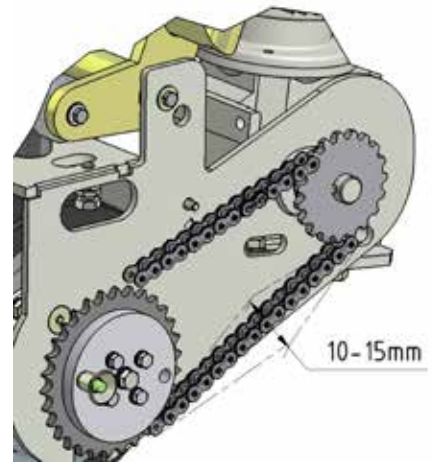
After this, clean the dirt from the internal parts of the chain. To do this, place the chain for approximately 24 hours in petroleum ether, diesel, or another solvent in order to soften the dirt and hardened lubricant remnants in the chain joints. Move the chain several times back and forward in the bath to clean the joints.

7.15 Adjust Chain Tension of the Traction Drive

The traction drive motor is mounted on a slotted plate. If necessary to retighten the chain, it can be done by shifting the motor along the slots.

In order to adjust the chain tension, loosen the fixing screws, and shift the motor in the direction needed to correct the chain tension.

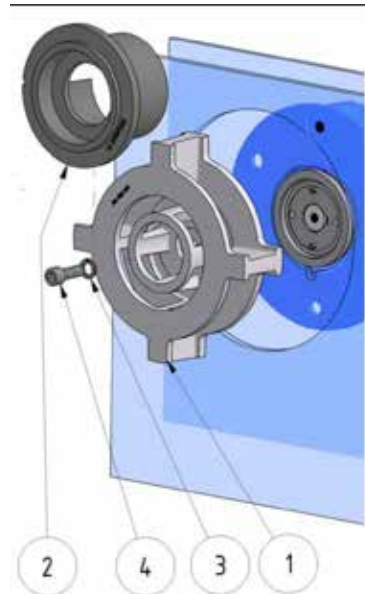
The correct chain tension is set when the chain allows to be dislocated for about 10-15 mm between the chain sprockets.



7.16 Wear Parts

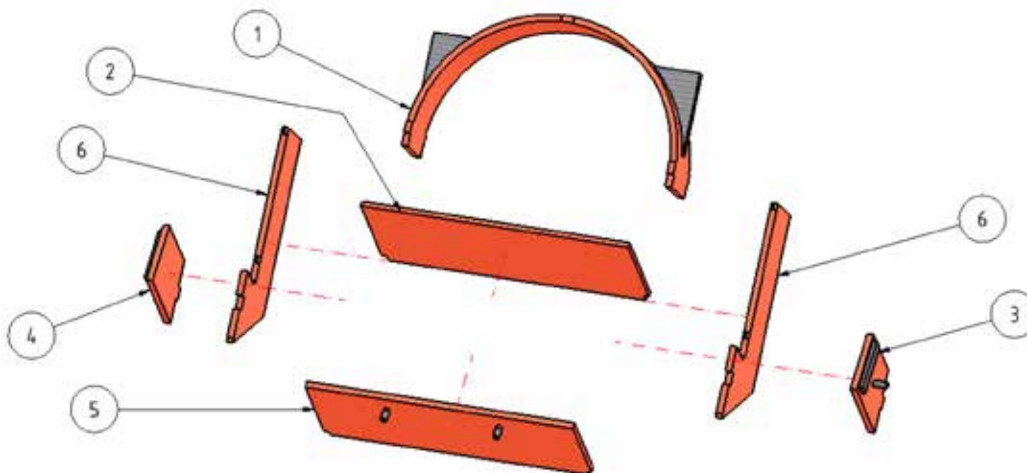
The Wheel Kit

- | | |
|---|--------------|
| 1 | Blast Wheel |
| 2 | Control Cage |
| 3 | Lock Washer |
| 4 | Bolt Liners |



Liners

- | | |
|---|----------------------|
| 1 | Top Liner |
| 2 | Top Plenum Liner |
| 3 | Side Liner Plenum RH |
| 4 | Side Liner Plenum LH |
| 5 | Bottom Plenum Liner |
| 6 | Side Liner |

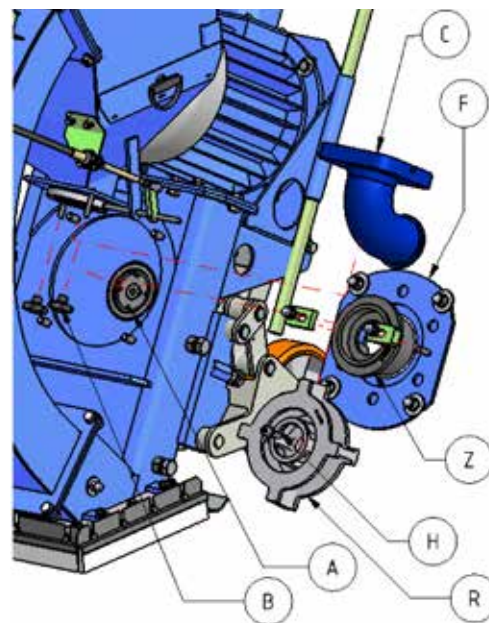


7.17 Replacing the Wheel Kit

The Wheel Kit consists of Blast Wheel, Control Cage, Lock Washer, and Bolt.

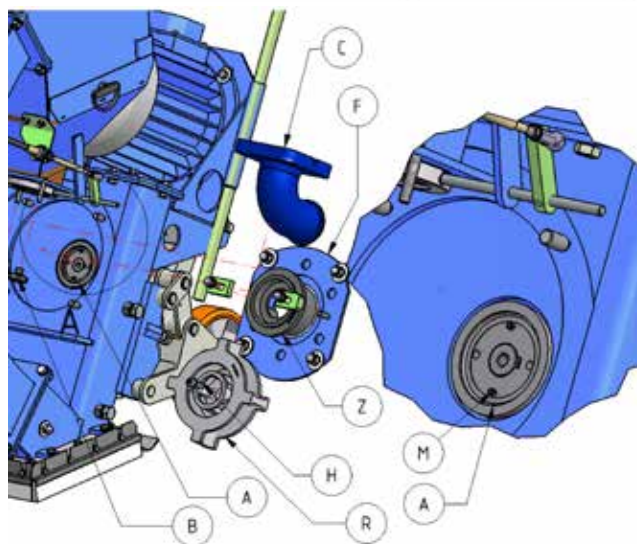
Demounting:

1. Remove the feed spout (C) loosening the Knurled-Nuts (B), pull away the feed spout and move the feed spout out of the housing.
2. Loosen the cage clamps and remove the control cage (Z).
3. Unscrew the 4 screws of the front cover plate (F) and take it off.
4. Unscrew the fixing screw (H) of the blast wheel (R) while holding the blast wheel still. Take the blast wheel out of the housing.
5. Check the wheel adapter (A) for wear and replace if necessary.



Mounting:

1. Clean all threads and use a new blast wheel fixing screw. Place the blast wheel (R) on the wheel hub (A) through the blast housing opening assure the blast wheel fit with the adapter pins (M) in line. Tighten the blast wheel by the fixing screw (H).
2. Fix the front cover plate (F) using the 4 washer and nuts.
3. Insert the control cage (Z) in the centre (observe Chapter 7.5 "Setting the blast pattern") and clamp the control cage with the cage clamps so that the blast wheel can rotate freely. Turn the blast wheel manually. It must rotate free.
4. Place the feed spout (B) in the housing and fix it with the knurled-nuts.

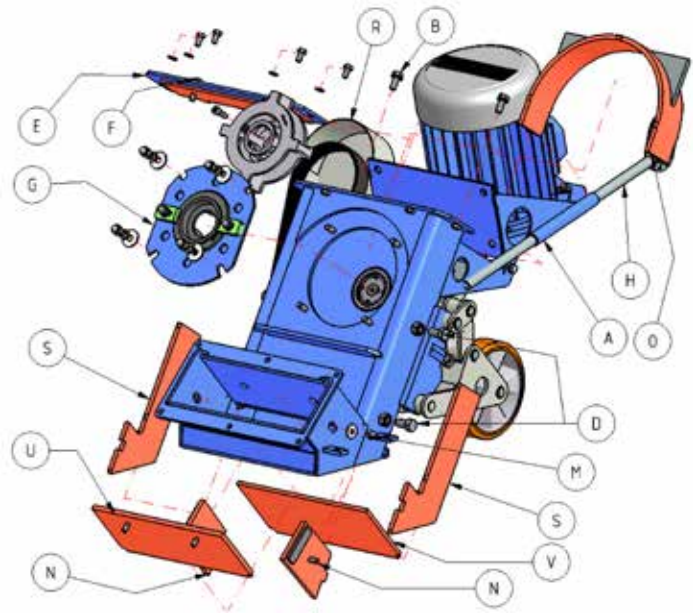


7.18 Replacing Liners

Demounting:

1. Take of the belt guard.
2. Take of the screws fitted on the inner side of the motor bracket (A) and swing the bracket with the handle (H) carefully forward. Take of the belt.
3. Remove the front-plate and wheel-kit (G).
4. Slacken the setscrews (F) of the top liner. Take of the screws of the cover (E) and remove the cover.

5. Slacken the setscrews (D) of both side-liner.
6. Remove the top liner (O) towards the top.
7. Slacken the nuts (M) of the rebound side-liners (N) push the liners inwards. Fully take off the nuts (M) and move both liners (N) downward away from the housing.
8. Push both side-liner (S) towards the bottom out of the housing.
9. To remove the rebound bottom (U) and top liner (V), take off the nuts and pull both downwards out of the housing.



Mounting:

1. Before fitting any new liner, check all threads being clean off dirt and abrasives. Clean where necessary.
2. First place the bottom (U) and top rebound liner (V), put the nuts on, but do not tighten them.
3. Place both side liner (S) into the housing.
4. Afterwards place both side liner (N) in the rebound area. Put the nuts on but do not tighten them.
5. Place the top liner (O) to the top.
6. Close the cover (E) and fit the screws, set the setscrews (F) on the cover so the top liner is supported in the center.
7. Slightly tighten the setscrews (D) of the side liners.
8. Force the side liners (S) upwards so there is no gap between top and side liners. If necessary, adjust top liner with the set screws (F) to the RH or LH side.
9. Tighten up the set screws (D)
10. Tighten up the nuts (M) both sides of the rebound area.
11. Tighten up the nuts of the top and bottom rebound liners.
12. Fit the wheel kit and front plate as described in 7.17.
13. Swing back the motor bracket, fit belt and belt guard (R).

Chapter 8.0 Electrical System

8.1 Hints for the Electronics

8.2 Circuit Diagrams

8.1 Hints for the Electronics



Completely shut off the machine for repair or maintenance work. All plugs have to be disconnected. Keep all cables and plugs near the machine in order to prevent the machine from being switched on accidentally.

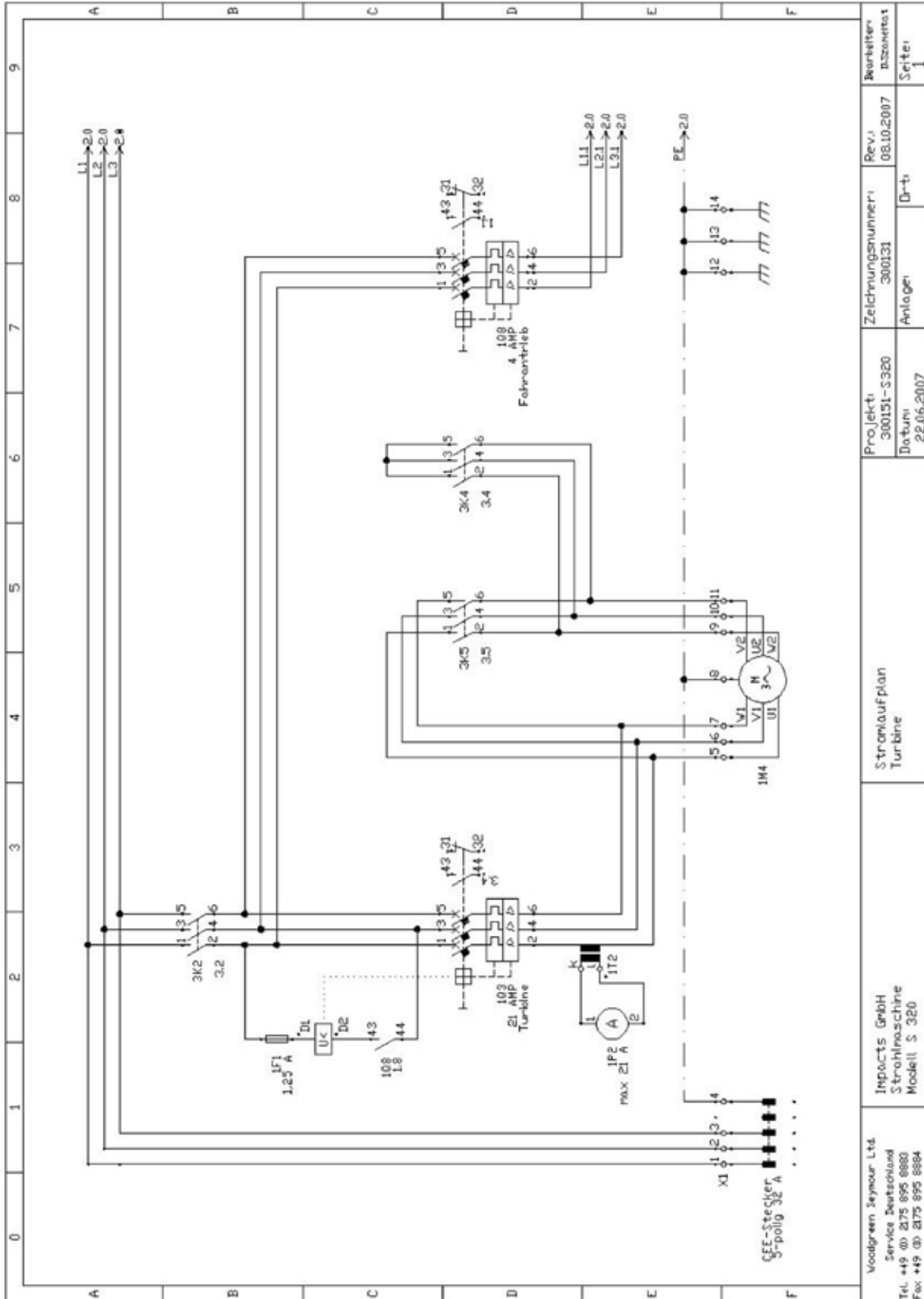
Electric spares need to be ordered with reference to the electrical circuit diagram within this chapter. If there is any doubt, you need to call your local IMPACTS service technician.

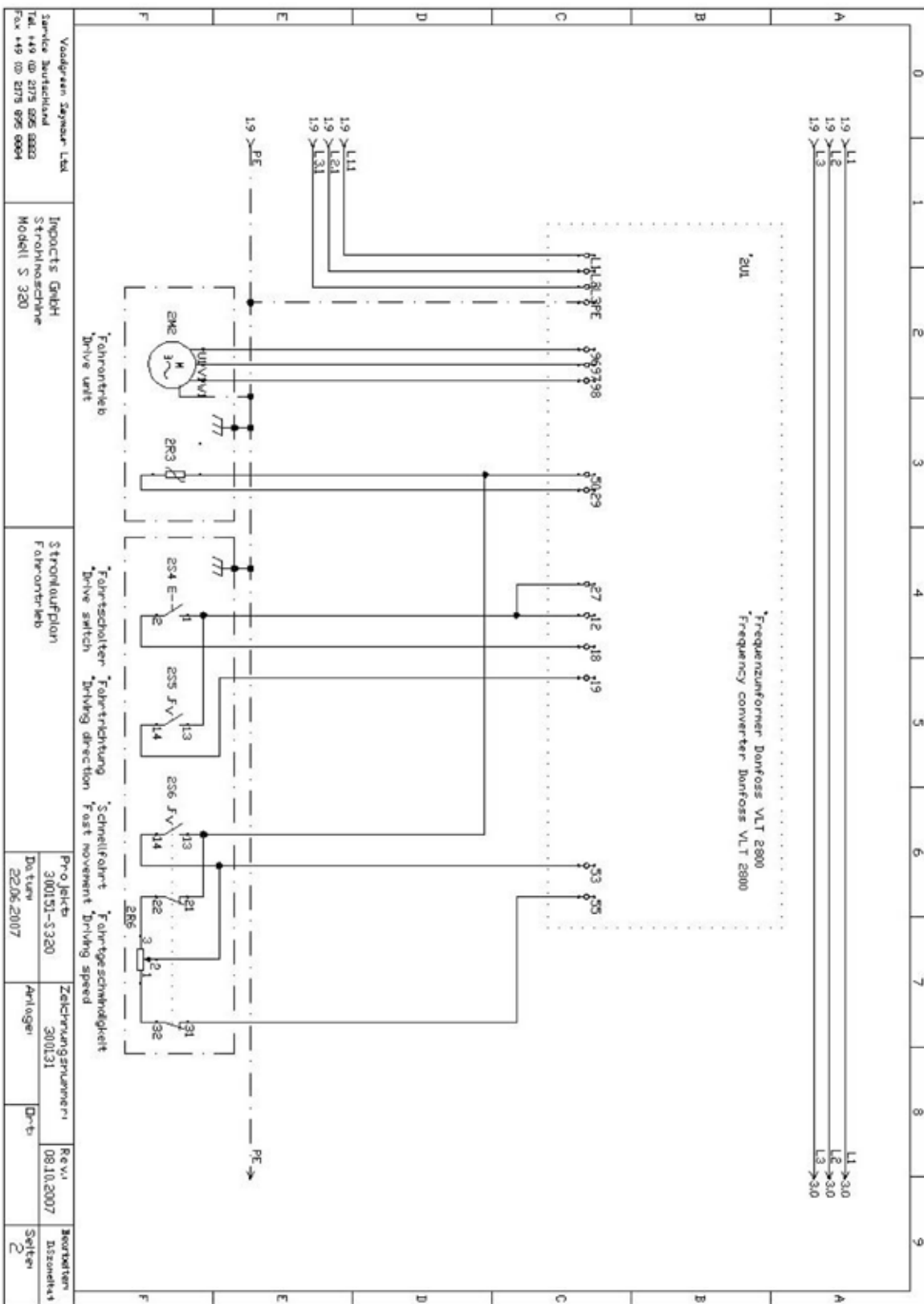
The electrical parts of the machine must be inspected regularly. Please note in particular the specified recurring inspections according VBG 4 or other local regulations. Defects such as loose connections or scorched cables must be rectified immediately. Call a skilled electrician or the IMPACTS customer service.



Work on the electrical parts of the equipment have to be undertaken by a skilled electrician or by a trained person under the guidance and supervision of a skilled electrician in accordance with the electrical engineering regulations.

8.2 Circuit Diagrams





Vaudegreen Sagemat Ltd
 Service Bauteilstand
 Tel: +49 (0) 275 895 8883
 Fax: +49 (0) 275 895 8894

Imprints GmbH
 Strahlmaschine
 Modell S 320

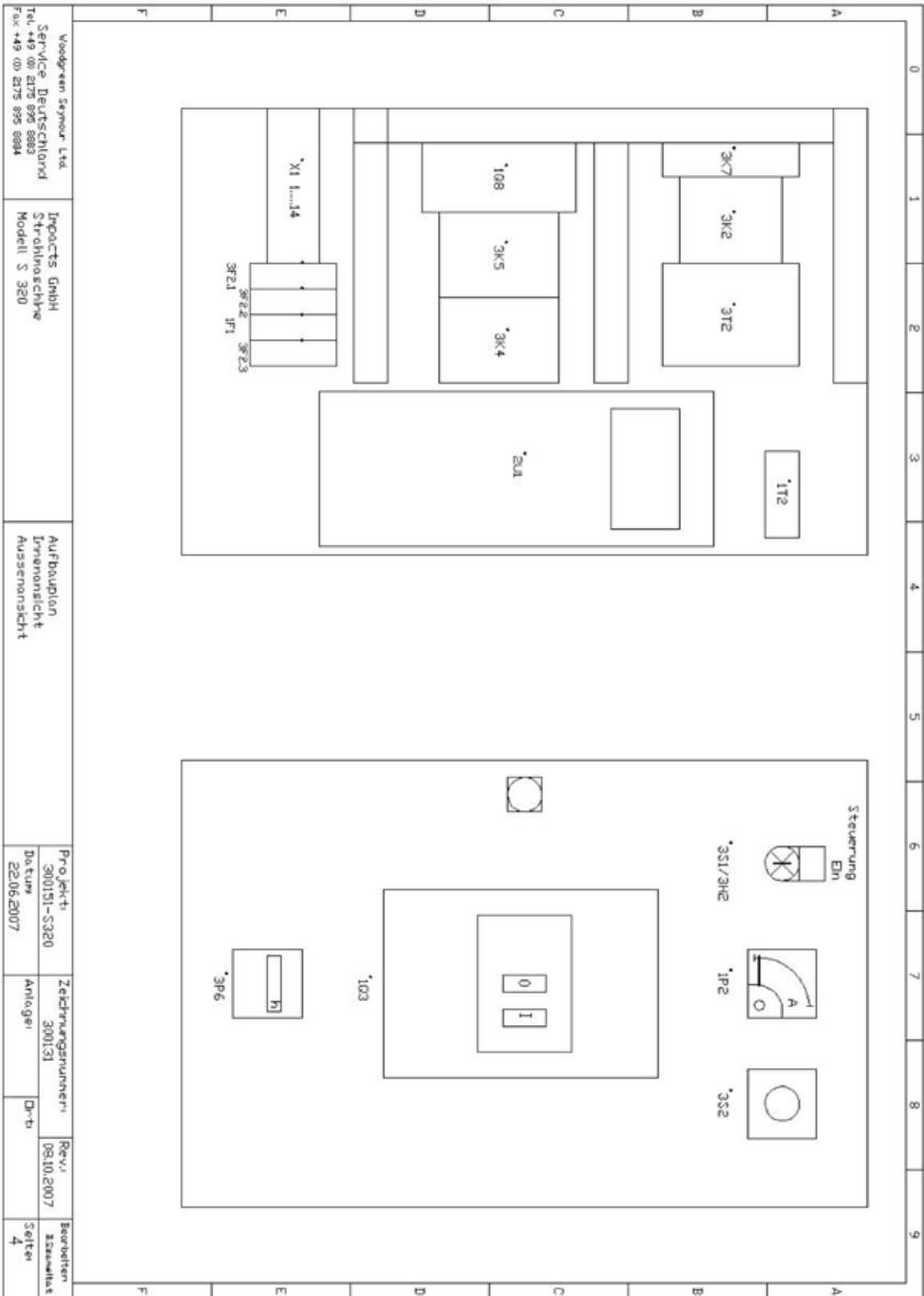
Strukturplan
 Fahrorttrieb

Projekt
 300151-S320
 Datum
 22.06.2007

Zeichnungsnummer
 300131
 Anlagen

Rev.
 08.10.2007

Bezeichnung
 Disziplin
 Seiten
 2



Chapter 9.0 Error Diagnostics

9.1 Diagnosis of Errors

9.2 Diagnosis of Electrical Failures

9.1 Diagnosis of Errors



Prior to any repair work on the machine or its drives, the machine has to be secured against unintentional switching on. Put the machine to its Safety off position as described in Chapter 2.

Failure	Possible Reasons for Failure	Failure Corrective Actions
Unusual Vibrations	Uneven wear of the blast wheel	Replace blast wheel set
	Unbalance due to broken parts or blades.	Check separator and all other sections of the machine. Remove all broken parts.
	Wheel hub worn out	Replace wheel hub
	Drive shaft 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 be fitted correctly. Tighten where necessary.
	Shrieking wheels	Apply oil or grease. Replace if worn.
	Motor bearings worn	Replace bearings
Reduced performance or no performance	Insufficient flow of abrasive in front of the blast wheel	Clean wire mesh and check feed spout for cleaning
	Not enough abrasive in storage	Fill up abrasive
	Loose valve lever	Tighten up set screw
	Valve adjustment	Adjust valve lever and valve disk.
	Too much dust and sand in the circuit	Check all seals and dust hose / Check filtration unit to be sealed properly (dust bin)

Failure	Possible Reasons for Failure	Failure Corrective Actions
Reduced performance or no performance	Blast wheel or control cage	Blast wheel or control cage worn out. Replace worn items.
	Belt tension	Check and adjust
	Valve does not close properly and abrasive is blocking the blast wheel when switch is on.	Close valve, stop motor, and readjust valve.
	Too much abrasive emitted when switched on.	Ensure motor has max speed before opening the valve,
	Feed motion too fast.	Reduce speed.
Loosing Abrasive	Bad seals	Check base seals readjust and replace when worn.
	Elevation adjustment of magnets	Check elevation to be no higher than 8mm.
	Magnets lost field	Replace magnets
	Filter unit	Adjust reducing damper
Dumping or Loosing Abrasive	Poor Abrasive quality	Use Quality abrasives
	Blast Wheel worn	Replace Blast Wheel
	Worn Seals	Replace Seals
	Elevation adjustment of magnets	Readjust elevation of magnets and adjust seals
	Too much dust and sand in system	Check filter
Too much dust and other particles in storage	Insufficient air flow toward filtration unit	<p>Check rated performance of the filter unit connected.</p> <p>Check all seals</p> <p>Check dust hose</p> <p>Check differential pressure and replace filter elements if pressure is too high.</p>

9.2 Diagnosis of Electrical Failures



Prior to any repair work on the machine or its drives, the machine has to be secured against unintentional switching on. Put the machine to its Safety off position as described in Chapter 2.



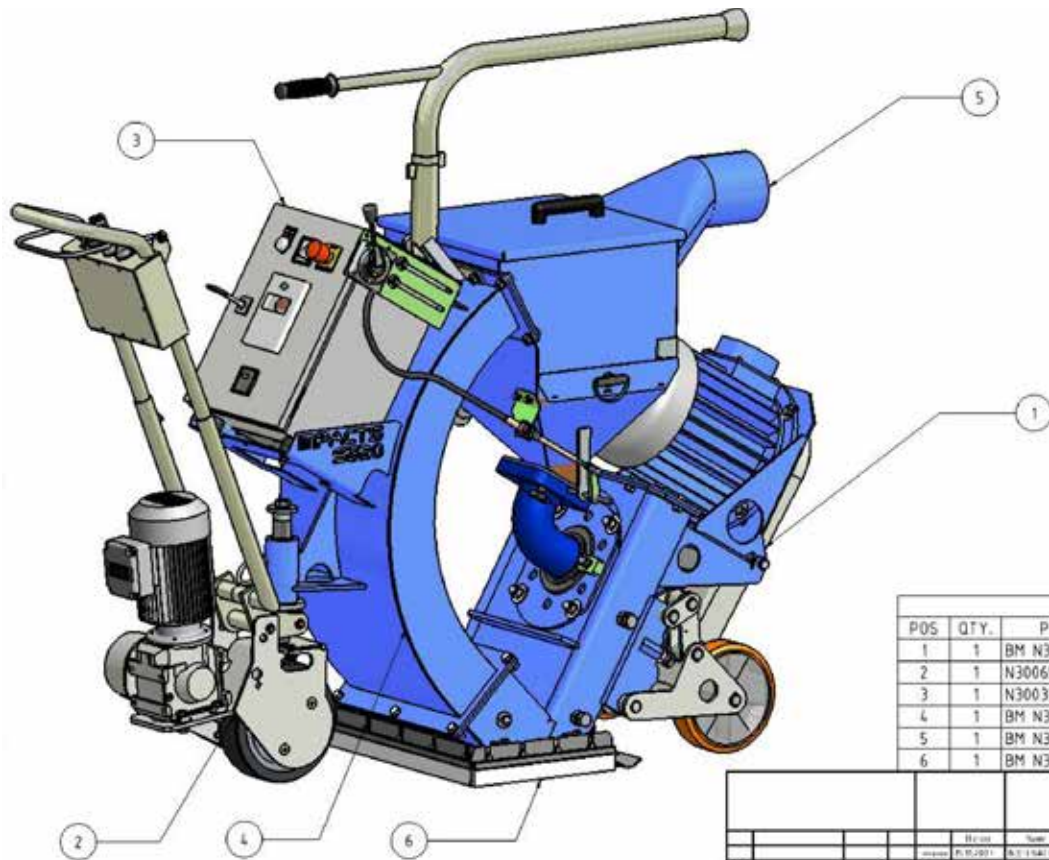
Work on the electrical parts of the equipment have to be undertaken by a skilled electrician or by a trained person under the guidance and supervision of a skilled electrician in accordance with the electrical engineering regulations.

Failure	Possible Reasons for Failure	Failure Corrective Actions
Motor does not start up	Missing Phase	Check power supply
	Faulty Switch or relays	Diagnosis and replacement by electrician
	Emergency Stop	Unlock Emergency Stop Button
Motor stops during operation	Current too high	Disconnect plug
	Power supply circuit breaker disengaged	Reset circuit breaker or replace fuse. Adjust maximum abrasive feeding (use ammeter)
	Motor is damaged	Check motor

Chapter 10.0 Spare Parts

- 10.1 Machine Overview
- 10.2 Wheel Drive Assembly
- 10.3 Wheel Housing Assembly
- 10.4 Rebound Assembly
- 10.5 Separator Assembly
- 10.6 Traction Drive Assembly
- 10.7 Base Seal Assembly
- 10.8 Toggle Lever
- 10.9 Blast Wheel and Bearing Unit

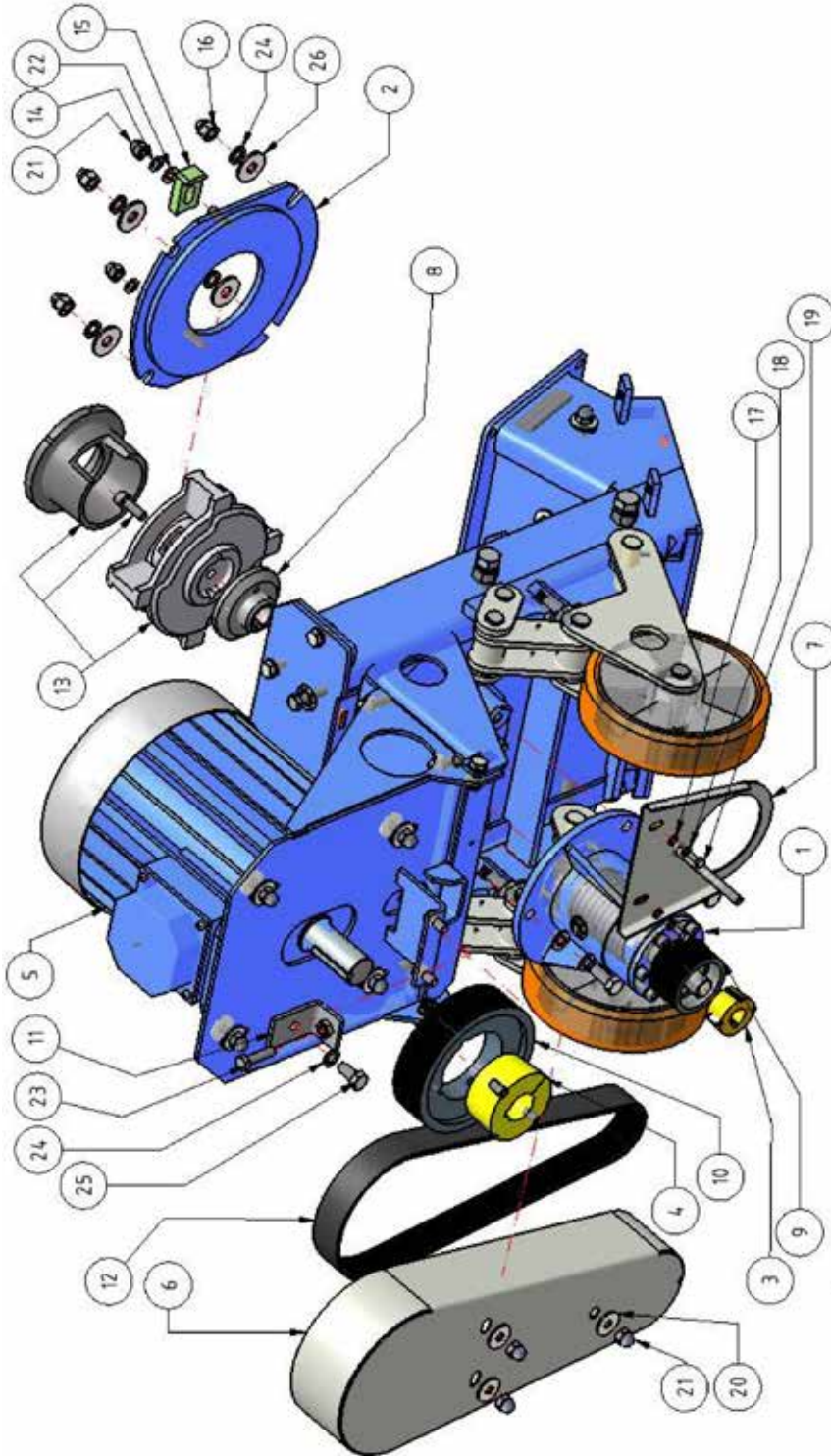
10.1 Machine Overview



OVERVIEW			
POS	QTY.	PART No.	DESCRIPTION
1	1	BM N300650	WHEELHOUSING ASSY
2	1	N300656	TRACTION DRIVE ASSEMBLY
3	1	N300312S320	CONTROL PANEL ASSY, S320
4	1	BM N300790	REBOUND ASSY S320
5	1	BM N301064	SEPARATOR ASSEMBLY S320
6	1	BM N301205	BASE SEAL ASSY

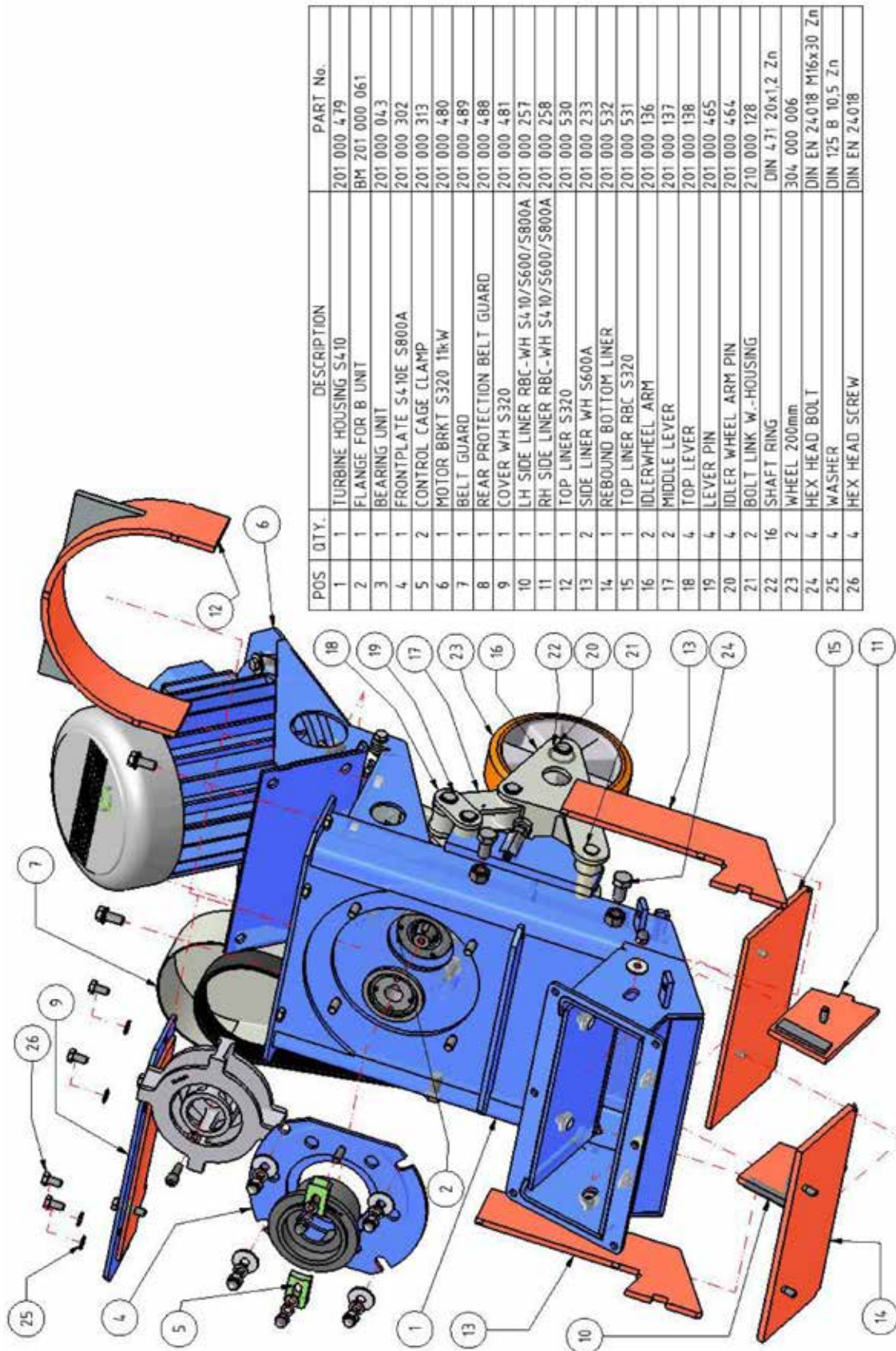
STRAHLMASCHINE S320 11kW	
SHOTBLASTER S320 11kW	
	BM S330 11kW TYPE A
	1

10.2 Wheel Drive Assembly



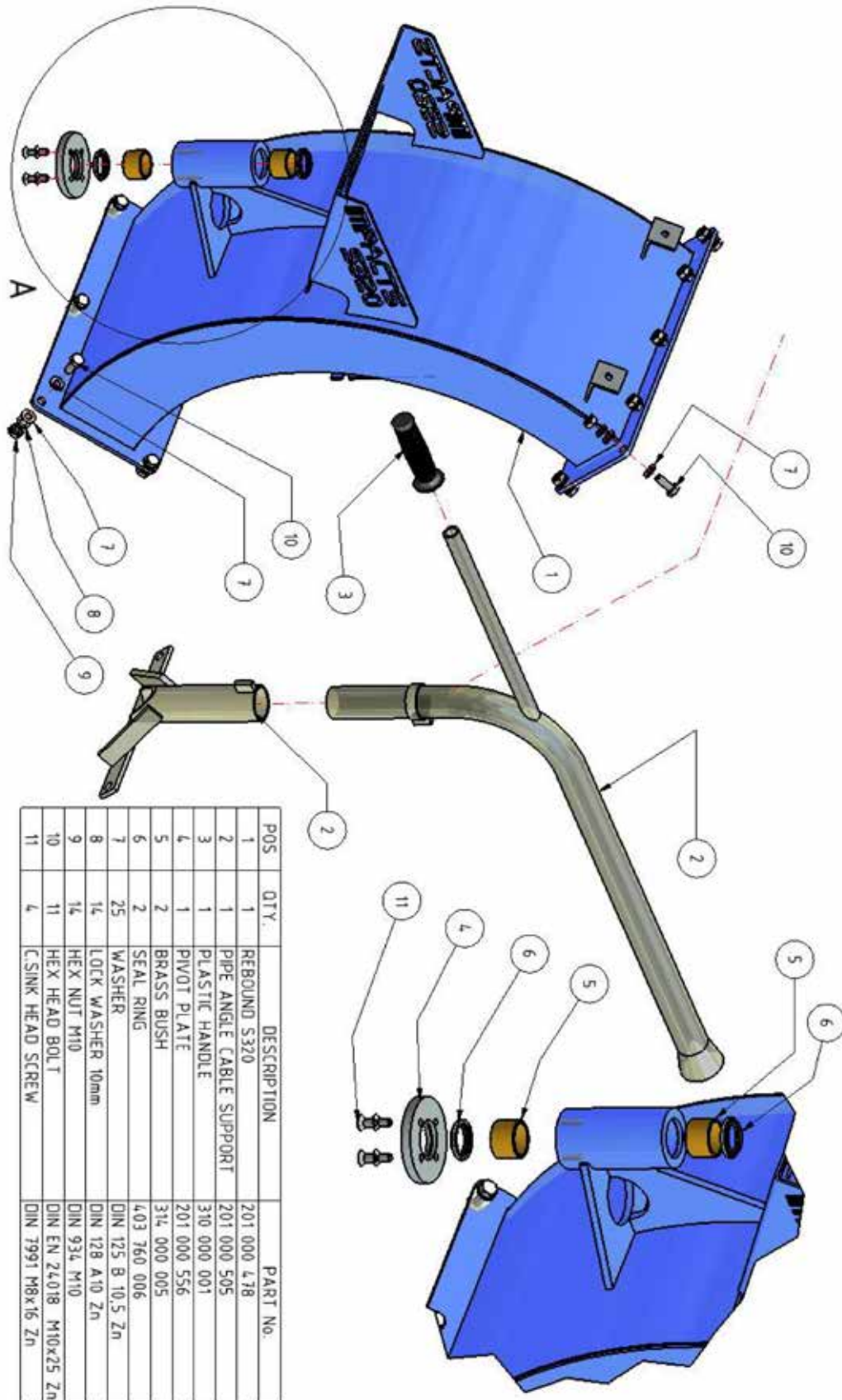
POS	QTY.	DESCRIPTION	PART No.	POS	QTY.	DESCRIPTION	PART No.
14	3	LOCK WASHER 10mm	DIN 128 A10 Zn	1	1	BEARING UNIT	201 000 043
15	2	CONTROL CAGE CLAMP	201 000 313	2	1	FRONTPLATE S4.10E S800A	201 000 302
16	4	CAP NUT M12	DIN 986 M12 Zn	3	1	TAPER LOCK BUSH	303 000 005
17	2	WASHER	DIN 125-1 B6 Zn	4	1	TAPERLOCK BUSH	303 000 014
18	2	LOCK WASHER	DIN 128 A6 Zn	5	1	WHEELMOTOR 11KW 400V	601 000 022
19	2	HEX HEAD BOLT	DIN EN 2.4018 M6x16 Zn	6	1	BELT GUARD	201 000 489
20	17	WASHER	ISO 7093 ST 10	7	1	REAR PROTECTION BELT GUARD	201 000 488
21	13	CAP NUT M10	DIN 1587 M10	8	1	WHEEL HUB	201 000 051
22	10	WASHER	DIN 125 B 10.5 Zn	9	1	SHEAVE J71	302 000 008
23	3	HEX HEAD BOLT	DIN EN 2.4018 M10x4.0 Zn	10	1	SHEAVE PV160	302 000 001
24	12	LOCKWASHER	DIN 128 A12 Zn	11	1	MOTOR PULL BRKT	201 000 482
25	1	HEX HEAD SCREW	DIN EN 2.4018	12	1	V BELT	301 000 007
26	4	ISO7093 WASHER		13	1	200 DIA IMP WHEEL	201 000 102

10.3 Wheel Housing Assembly

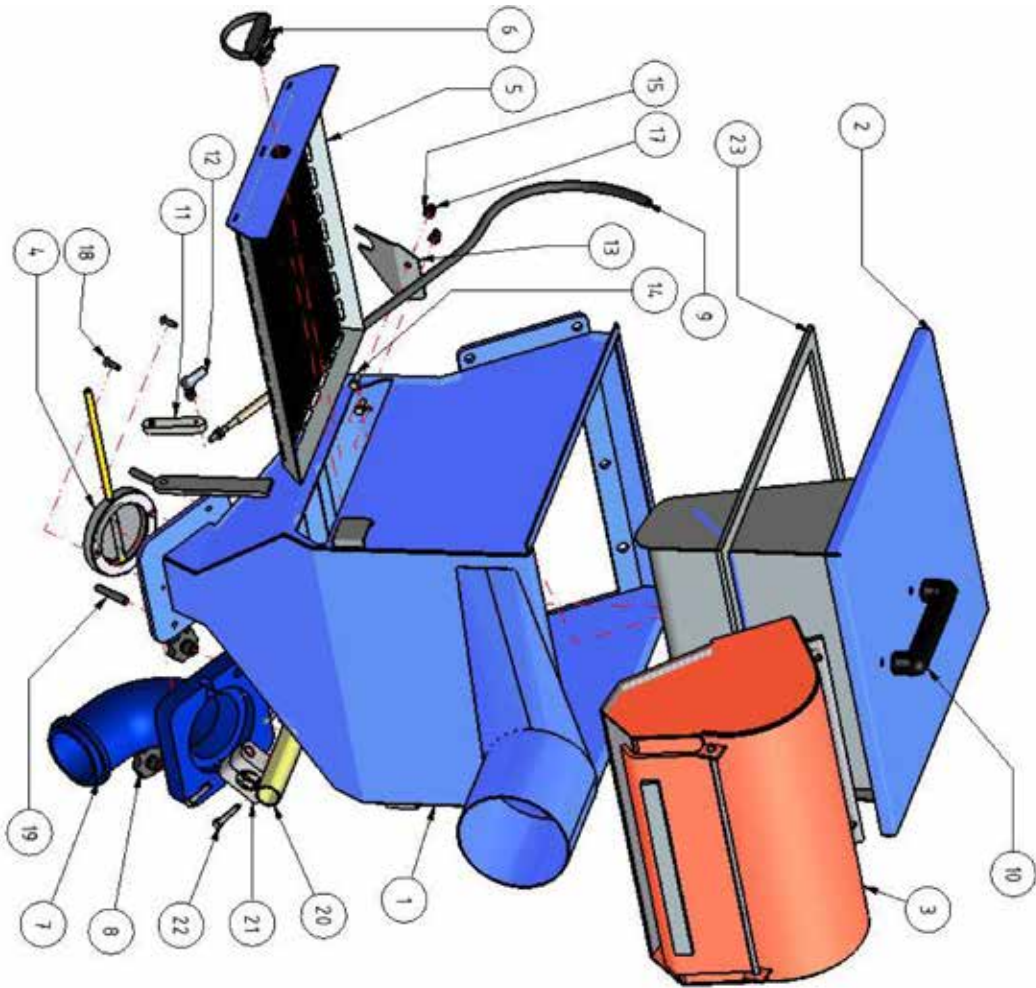


POS	QTY.	DESCRIPTION	PART No.
1	1	TURBINE HOUSING S4.10	201 000 479
2	1	FLANGE FOR B UNIT	BM 201 000 061
3	1	BEARING UNIT	201 000 043
4	1	FRONTPLATE S4.10E S800A	201 000 302
5	2	CONTROL CAGE CLAMP	201 000 313
6	1	MOTOR BRKT S320 11kW	201 000 480
7	1	BELT GUARD	201 000 489
8	1	REAR PROTECTION BELT GUARD	201 000 488
9	1	COVER WH S320	201 000 481
10	1	LH SIDE LINER RBC-WH S4.10/S600/S800A	201 000 257
11	1	RH SIDE LINER RBC-WH S4.10/S600/S800A	201 000 258
12	1	TOP LINER S320	201 000 530
13	2	SIDE LINER WH S600A	201 000 233
14	1	REBOUND BOTTOM LINER	201 000 532
15	1	TOP LINER RBC S320	201 000 531
16	2	IDLERWHEEL ARM	201 000 136
17	2	MIDDLE LEVER	201 000 137
18	4	TOP LEVER	201 000 138
19	4	LEVER PIN	201 000 465
20	4	IDLER WHEEL ARM PIN	201 000 464
21	2	BOLT LINK W.-HOUSING	210 000 128
22	16	SHAFT RING	DIN 471 20x1,2 Zn
23	2	WHEEL 200mm	304 000 006
24	4	HEX HEAD BOLT	DIN EN 24018 M16x30 Zn
25	4	WASHER	DIN 125 B 10,5 Zn
26	4	HEX HEAD SCREW	DIN EN 24018

10.4 Rebound Assembly

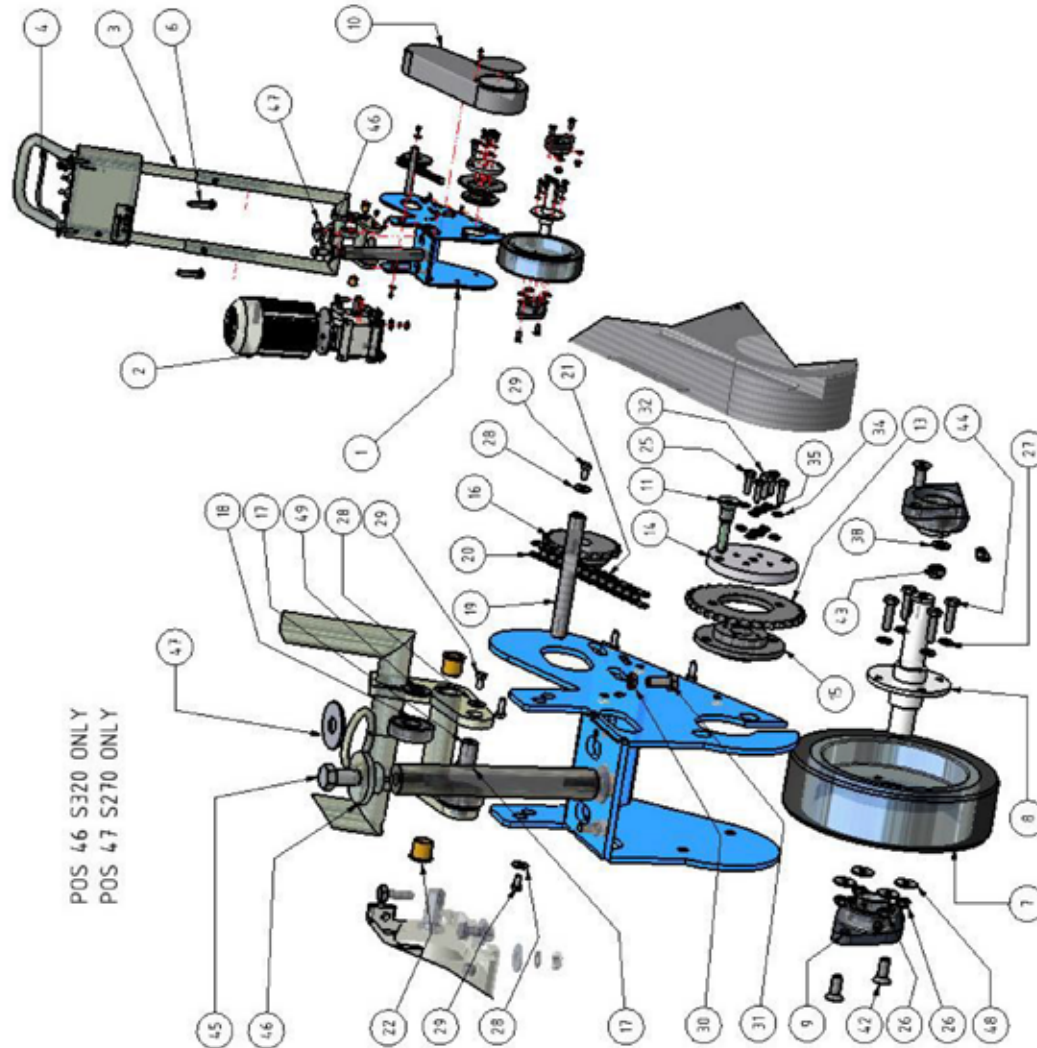


10.5 Separator Assembly



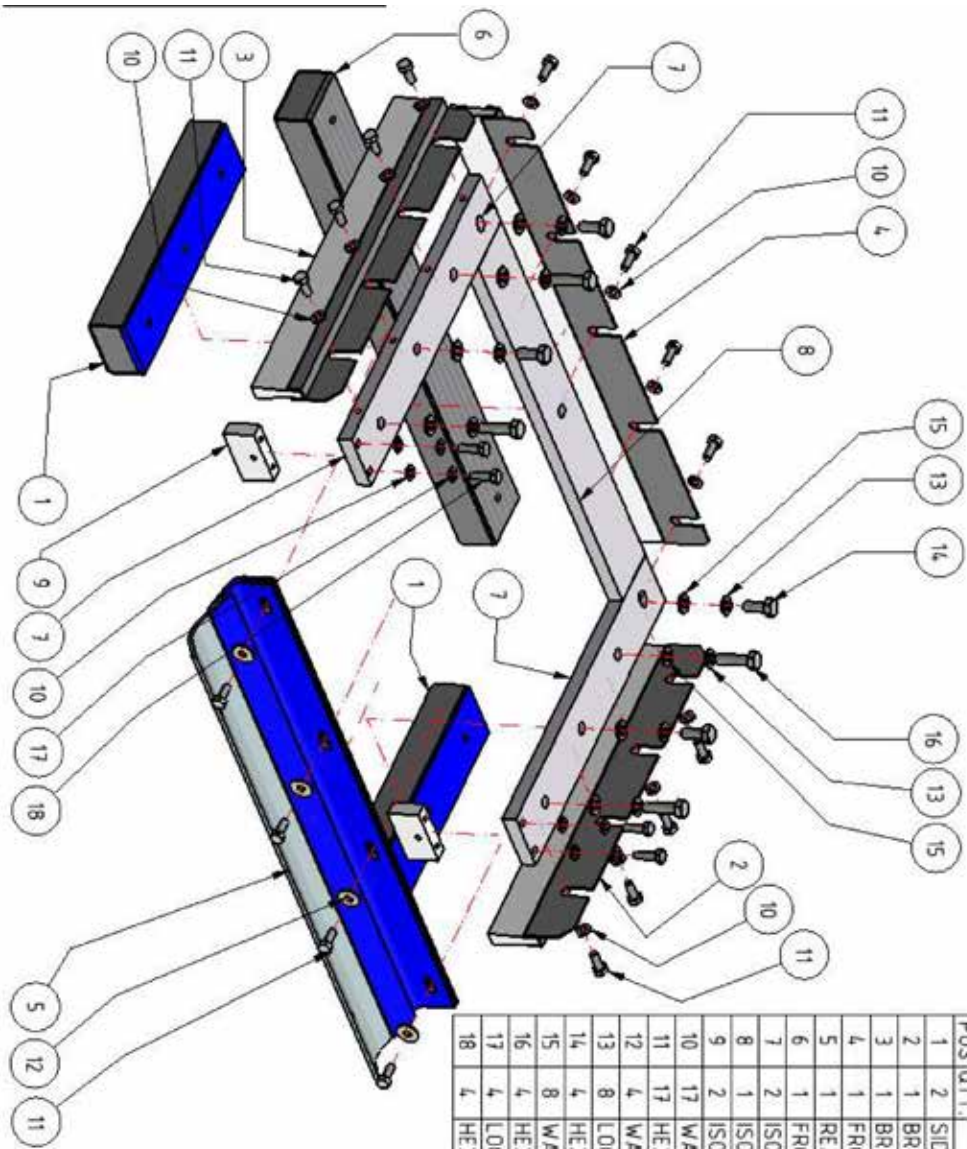
POS	QTY.	DESCRIPTION	PART No.
1	1	SEPARATOR HOUSING S320	201 000 483
2	1	SEP LID S320	201 000 484
3	1	DEFLECTOR S320	201 000 467
4	1	ABRASIVE FEED VALVE	201 000 165
5	1	SEPARATOR TRAY	201 000 485
6	1	CAM LAATCH	314 000 075
7	1	FEED SPOUT 1-100S-2-300	201 000 159
8	2	STAR KNOB	310 000 005
9	1	CONTROL CABLE	201 000 250
10	1	HANDLE	310 000 002
11	1	VALVE LEVER	201 000 315
12	1	BALL JOINT M6	471 802 004
13	1	C CABLE BRKT. S320	201 000 500
14	2	HEX HEAD BOLT	DIN EN 24018 M6x16 Zn
15	2	WASHER	DIN 125-1 B6.4 Zn
16	2	LOCK WASHER	DIN 128 A6 Zn
17	2	CAP NUT	DIN 986 M6 Zn
18	2	C.SUNK HD.SCREW SLOTTED	ISO 2009 M5x20
19	2	BOLT M8x30	DIN 835 M8x30
20	1	PIPE 28x2	N300300
21	2	PIPE CLAMP AL No.4	428 - AL
22	4	HEX. SOCK.HD.CAP SCREW	DIN 912 M6x35 Zn
23	1	LD SEAL 16001g	308 000 003

10.6 Traction Drive Assembly



POS	QTY.	DESCRIPTION	PART No.
1	1	TRACTION DRIVE BRKT S270A S320	201 000 371
2	1	TRACTION DRIVE MOTOR	601 000 025
3	1	TOP HANDLE	201 000 372
4	1	SWITCH LEVER	201 000 429
5	1	PUSH IN LEVER	201 000 375
6	2	CLAMPING HANDLE	311 600 009
7	1	TRACTION DRIVE WHEEL 220MM	504 000 003
8	1	TRAC.DRIVE SHAFT	201 000 370
9	2	FLANGE BEARING	400 626 003
10	1	CHAIN GUARD	201 000 372
11	1	LOCK PIN	316000001
12	1	MICRO SWITCH	605000005
13	1	SPROCKET	309 000 005
14	1	SPROCKET RETAINER	201 000 057
15	1	SPROCKET RETAINER	201 000 374
16	1	MOTORSPROCKET	309 000 009
17	2	BOLT	201 000 060
18	2	BALL BEARING	400 675 016
19	1	BOLT HANDLE LEVER	201 000 377
20	3	DRIVE CHAIN	309000003
21	1	CHAIN LINK	309000004
22	2	BRASS BUSHING	316000002
23	2	HEX NUT M6	DIN 934 M6 Zn
24	1	HEX HEAD BOLT	DIN EN 24038 M6x10 Zn
25	5	HEX HEAD BOLT	DIN EN 24038 M6x20 Zn
26	8	LOCK NUT M8	ISO 7040 M8 Zn
27	9	WASHER	DIN 125-1 B 8.4 Zn
28	4	WASHER	DIN 9021 6.1 Zn
29	4	HEX HEAD BOLT	DIN EN 24038 M6x17 Zn
30	2	FLAT NUT M10	DIN EN 24035 M10 Zn
31	2	HEX HEAD BOLT	DIN EN 24038 M10x25 Zn
32	1	HEX HEAD SCREW	DIN EN 24038 M8x20 Zn
33	7	WASHER	DIN 125-1 B6 Zn
34	4	LOCK WASHER	DIN 128 A6 Zn
35	1	LOCK WASHER	DIN 128 A10 Zn
36	4	LOCK WASHER 10mm	DIN 128 A10 Zn
37	4	WASHER	ISO 7093 ST 10
38	8	WASHER	DIN 125 B 10.5 Zn
39	4	HEX HEAD BOLT	DIN EN 24038 M10x30 Zn
40	4	HEX NUT M10	DIN 934 M10
41	3	HEX HEAD BOLT	DIN EN 24038 M6x16 Zn
42	4	COUNTER SINK HEX SCREW	DIN 991 M10x25 Zn
43	4	LOCK NUT M10	DIN 985 M10 Zn
44	4	HEX HEAD BOLT	DIN EN 24038 P8x30 Zn
45	1	HEX HEAD BOLT	DIN EN 24038 M16x30 Zn
46	1	LIFT STOP S320	201 000 504
47	1	WASHER	DIN 9021 17 Zn
48	4	WASHER	DIN 9021 8.4 Zn
49	2	WASHER	DIN 125-1 B17 Zn

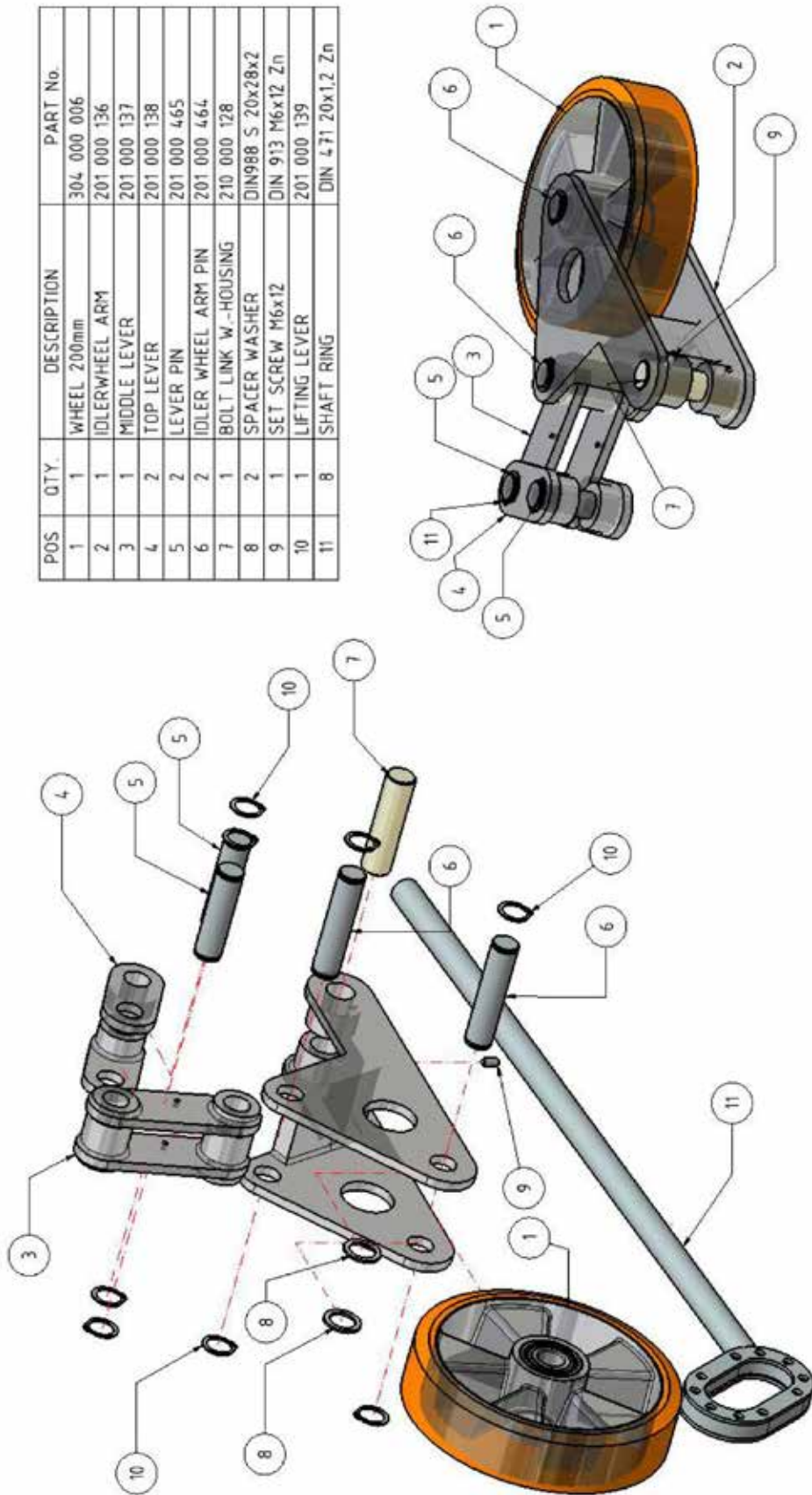
10.7 Base Seal Assembly



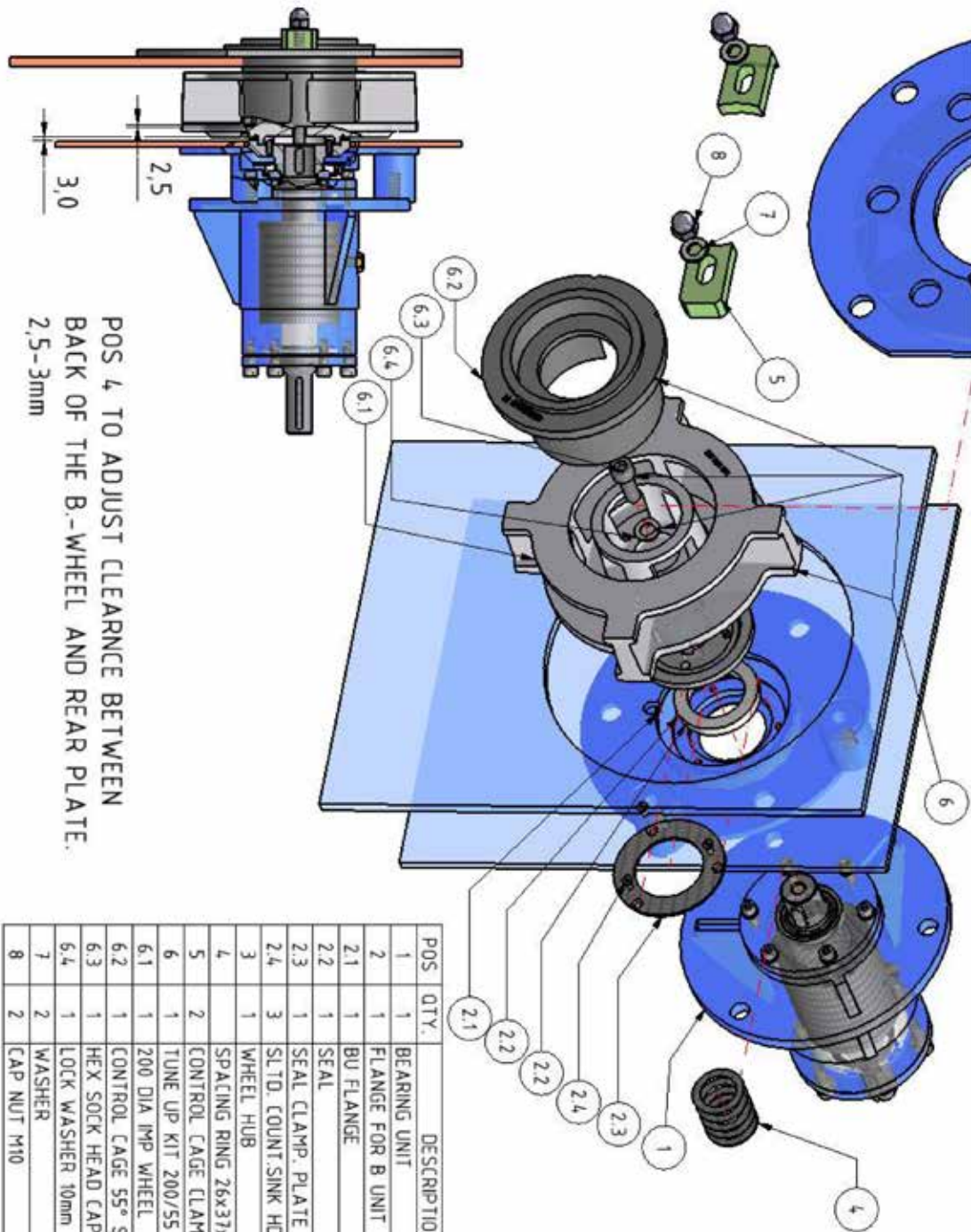
POS. QTY.	DESCRIPTION	PART No.
1	2 SIDE MAGNET	201 000 175
2	1 BRUSH LH	201 000 024
3	1 BRUSH RH	201 000 027
4	1 FRONT BRUSH S320	201 000 503
5	1 REAR SEAL S380	201 000 494
6	1 FRONTMAGNET	201 000 502
7	2 ISOLATOR SIDE MAGNET RH/LH	201 000 194
8	1 ISOLATOR FRONT S320	201 000 501
9	2 ISOLATOR-REAR SPACER	201 000 195
10	17 WASHER	DIN 125-1 B6 Zn
11	17 HEX HEAD BOLT	DIN EN 24018 M6x16 Zn
12	4 WASHER	DIN 9021 6,4 Zn
13	8 LOCK WASHER	DIN 128 A8 Zn
14	4 HEX HEAD SCREW	DIN EN 24018 M8x20 Zn
15	8 WASHER	DIN 125-1 B 8,4 Zn
16	4 HEX HEAD BOLT	DIN EN 24018 M8x30 Zn
17	4 LOCK WASHER	DIN 128 A6 Zn
18	4 HEX HEAD BOLT	DIN EN 24018 M6x20 Zn

10.8 Toggle Lever

POS	QTY.	DESCRIPTION	PART No.
1	1	WHEEL 200mm	304 000 006
2	1	IDLER WHEEL ARM	201 000 136
3	1	MIDDLE LEVER	201 000 137
4	2	TOP LEVER	201 000 138
5	2	LEVER PIN	201 000 465
6	2	IDLER WHEEL ARM PIN	201 000 464
7	1	BOLT LINK W.-HOUSING	210 000 128
8	2	SPACER WASHER	DIN988 S 20x28x2
9	1	SET SCREW M6x12	DIN 913 M6x12 Zh
10	1	LIFTING LEVER	201 000 139
11	8	SHAFT RING	DIN 471 20x1,2 Zn



10.9 Blast Wheel and Bearing Unit



POS 4 TO ADJUST CLEARANCE BETWEEN
BACK OF THE B.-WHEEL AND REAR PLATE.
2,5-3mm

POS	QTY.	DESCRIPTION	PART No.
1	1	BEARING UNIT	201 000 043
2	1	FLANGE FOR B UNIT	BM 201 000 061
2.1	1	BU FLANGE	201 000 061
2.2	1	SEAL	201 000 073
2.3	1	SEAL CLAMP. PLATE	201 000 062
2.4	3	SLTD. COUNT.SINK HD. SCREW	DIN 963 M4x10 Zn
3	1	WHEEL HUB	201 000 051
4		SPACING RING 26x37x02	
5	2	CONTROL CAGE CLAMP	201 000 313
6	1	TUNE UP KIT 200/55	201 000 102
6.1	1	200 DIA IMP WHEEL	201 000 334
6.2	1	CONTROL CAGE 55° SHORT	201 000 102
6.3	1	HEX SOCK HEAD CAP SCREW	DIN 912 M10x30
6.4	1	LOCK WASHER 10mm	DIN 128 A10 Zn
7	2	WASHER	DIN 125 B 10,5 Zn
8	2	CAP NUT M10	DIN 1587 M10



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