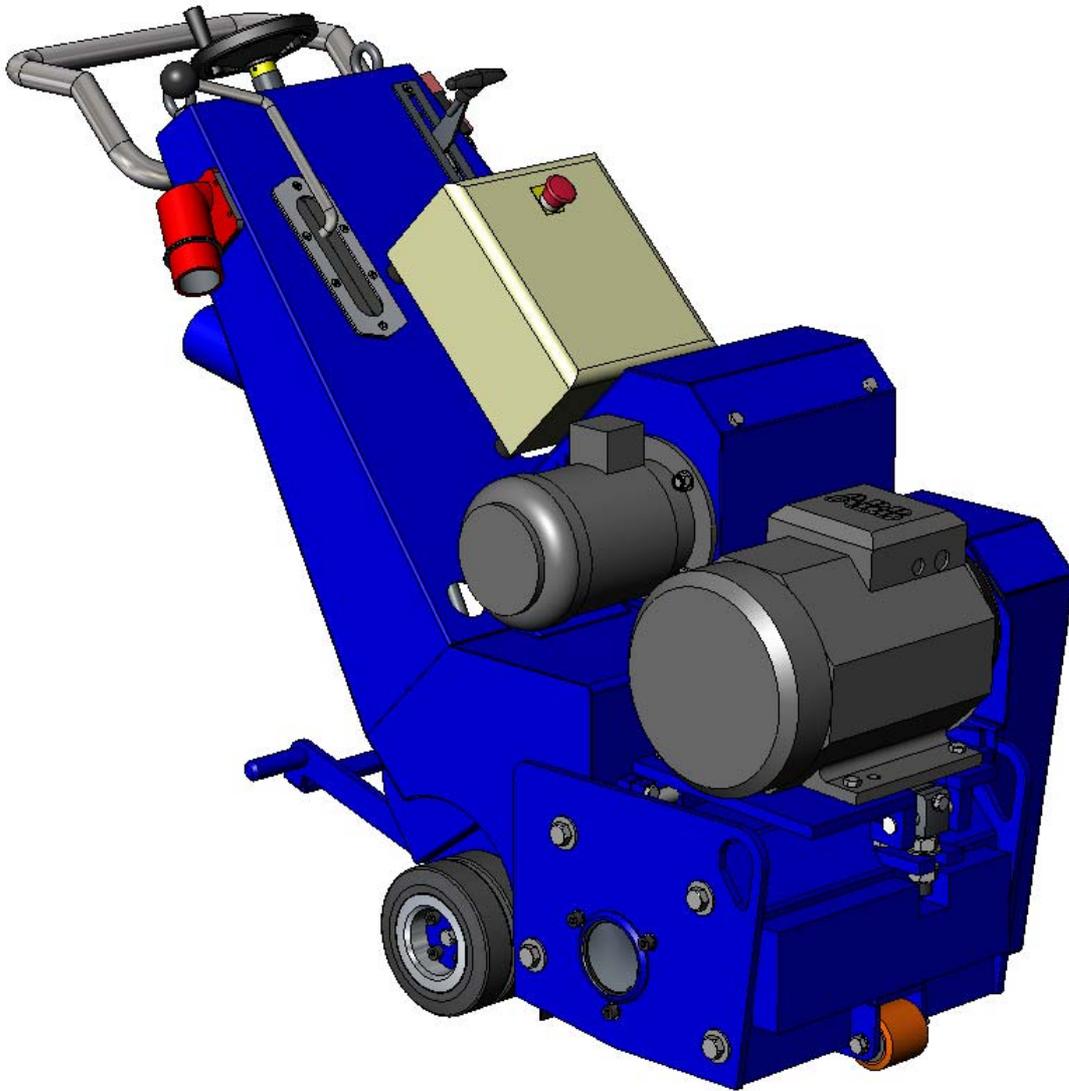


# Operating Manual

## BMP-335



 **BLASTRAC**

**Blastrac B.V.**  
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**Contents Chapter 1**

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- 1.1 Rating
- 1.2 Unit specifications
- 1.3 Operative range and correct usage
- 1.4 Stand-by power supply
- 1.5 Machine type designation
- 1.6 Advice's for operators of the scarifier

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**Technical Data**

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**1.1 Rating**

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Unit / designation	: <b>Blastrac</b> Scarifier
Machine type	: BMP-335EHY
Manufacturer	: <b>BLASTRAC BV</b> Utrechtshaven 12 3433PN Nieuwegein The Netherlands

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**1.2 Unit specifications**

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Technical data:

<b>Scarifier</b>	<b>BMP-335EHY</b>
Power consumption	12,1 kW
Connected loads	400 V, 50 Hz, CEE 32 A
Scarifier holder width	335 mm
Working width	335 mm
Traction Drive	variable hydraulic Drive motors, progressively adjustable forward and reverse
Scarifying output	up to 150 m <sup>2</sup> /h
Dust hose connection	75 mm Ø
Recommended Filter unit	Contact Blastrac for a suitable filter unit
Noise Level	LpA 97,3 dB
Vibration Level	4,17 ms <sup>2</sup>

Dimensions:

	BMP-335EHY	
Length	1400	mm
Width	605	mm
Height	1075	mm
Weight (incl. drum)	405	kg

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### 1.3 Operative range and correct usage

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**The scarifier BMP-335EHY is exclusively designed to clean horizontal surfaces. The machine may not be used for other purposes. The manufacturer will not be liable for damage resulting from such incorrect usage. In these cases the user assumes all risks.**

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### 1.4 Stand-by power supply (Generator)

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**If the scarifier BMP-335EHY is operated using a generator, this generator must be operated in accordance with the current VDE directives (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.**



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**Contents Chapter 2**

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- 2.0 Warnings and symbols
- 2.1 Organisational measures
- 2.2 Personnel selection and qualification
- 2.3 Safety precautions applicable to some operating sequences
- 2.4 Special work within the scope of use of the equipment and maintenance activities as well as repairs during operation
- 2.5 Definition of the **Safety off position**
- 2.6 Particular dangerous aspects of the equipment
- 2.7 Electrical engineering regulations

**Safety Advices**

**2.0 Warnings and Symbols**

The following denominations and symbols are used in the Operating Instructions to highlight areas of particular importance:

2



**Symbol of operational safety.**  
 In these Operating Instructions this symbol will be shown next to all safety precautions that are to be taken in order to ensure prevention to life and injury. Follow these instructions and take special care in these circumstances. In addition to these instructions, the general safety precautions and accident prevention guidelines are also to be followed.



**Particular details regarding the economical use of the equipment.**



**Information, instructions and restrictions with regard to possible risks to persons or to extensive material damages.**

**Warning against dangerous voltages.**



**Indications relating to protective devices in electrical appliances.**

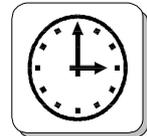


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**Indications relating to protective devices in electrical appliances.**



**Instructions relating to periodical checks.**



**Reference to important instructions contained in the Operating Instructions.**



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## Safety Advices

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### 2.1 Organisational measures

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The **Operating Instructions** are to be kept **near the location where the machine** is located and must be **within reach at all times!**

In addition to the Operating Instructions general and legal regulations regarding accident prevention and environmental protection must be complied with and indicated!

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 traffic regulations.

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



Personnel entrusted with working with the machine must have read the **Operating Instructions** before starting work, in particular the **Safety Instructions** chapter. To read these instructions during work is too late. This particularly applies to incidental activities such as setting up the equipment, carrying out maintenance work or training staff to work with the machine.

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

Personnel must tie back long hair and not wear loose clothing or jewellery including rings. There is a risk of injury through getting stuck or being drawn into moving machinery.



Use **personnel protection equipment** if necessary or required by regulations! Take notice of **all safety and hazard notices** on the machine!

All **safety and hazard notices** at or on the machine must be kept complete and **legible!**

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 immediately!

**Changes**, add-ons or conversions to the machine which might impair safety must not be undertaken **without the manufacturer's permission!**

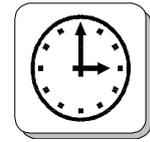


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This applies in particular to the fitting and adjustment of safety devices as well as to welding on load-bearing parts.

Spare parts must comply with the technical requirements specified by the manufacturer. This is always guaranteed if original spare parts are used.

**Intervals** for recurring **checks and inspections** specified in these Operating Instructions must be complied with!



To perform maintenance work correctly it is imperative to be equipped with the proper tools for the task in question.

The **location** and the operation of **fire extinguishers** must be made known on each building site!

Take note of the facilities for reporting and fighting fires!

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## 2.2 Personnel selection and qualification

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Fundamental duties :

Work on the machine may only be undertaken by **reliable personnel**.

Only trained personnel may be deployed. **Note the statutory minimum age!** Specify clearly the responsibilities of personnel for operation, setting up, servicing and maintenance work!

**Make sure** that only **authorised** personnel operate or work on the machine!

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## Safety Advices

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Define responsibilities of the machine operator also regarding to **traffic safety regulations** and empower him to decline instructions from third parties which are not complying with the safety requirements!

2

Personnel being trained or made acquainted with the equipment may only be deployed on the machine **under constant supervision of an experienced person!**



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**.

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### 2.3 Safety precautions applicable to some operating sequences

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Ban any method of working that **impairs safety!**

Some measures have to be taken in order to operate the machine in safe and operative conditions!



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!**

Check the machine visually for any **damage** and **defects** at least once a day!

In the event of **operational malfunctions** the machine must be **shut down immediately** and secured!



Secure the **work area** around the machine in **public areas** providing a **safety distance** of at least 2 m from the machine.

Faults must be immediately rectified!

Carry out the switch on and off operations and pay attention to control display according to the operation manual!

Before switching on the machine make sure that no-one can be endangered when the machine starts up!

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

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



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



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## 2.4 Special work within the scope of use of the equipment and maintenance activities as well as repairs during operation

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### **Mechanical servicing work:**

Put the machine in the **Safety off position** as described in chapter 2.5 for any servicing work on the machine.

Please follow any special **safety instructions** in the various chapters on servicing the machine.

**See chapter 7.1 - 7.9.**

**Adjustment, servicing and inspection work and time limits** specified in these Operating Instructions as well as any information on the replacement of parts and equipment must be **undertaken and/or complied with!**

These activities may only be undertaken by **qualified personnel**.

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## Safety Advices

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The **operator has to be informed** about all kind of **maintenance works** before starting the process!

2 At all works that are related to normal operation, conversion of tools adjustment of the machine and its safety devices as well as before inspection, maintenance and repair all ON and OFF functions have to be carried out according the operation manual and advises for maintenance and repair.

If the equipment is switched off in order to do maintenance, repair or adjustment it has to be secured against unintended restart.

**Switch OFF and disconnect** it from the power supply and secure **the main switch** with a **padlock**.

See **Chapter 2.5 Safety off position for specific details**.

**Always dispose** the contents of the **dust bin** of the dust collector used before **loading** it on van or truck. Observe the **waste disposal regulations**, in uncertain situation ask your next policy level.

Do not use any **aggressive** cleaning materials!

Use lint-free **cleaning cloths**!

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

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

**Make sure that process materials and replaced parts are disposed of safely and in an environmentally-friendly manner!**



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**.

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

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## 2.5 Definition of the Safety off position

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### Definition:

The machine is in a safe condition when it cannot generate any hazard.

Putting the equipment in the Safety off position means:

- Manipulate the quick lift (Upper Position).**
- Switch off the machine.**
- Switch off the dust collector.**
- Wait for standstill of all drives.**
- Pull out mains plug.**
- Secure against unintended restart**

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## 2.6 Particular dangerous aspects of the equipment

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Any machine, if it is **not used according the regulations**, may be **hazardous** for operating, setting-up and service personnel. 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!



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## Safety Advices

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### 2.7 Electrical engineering regulations

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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**.



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



The electrical equipment for the plant must be **inspected regularly**. Defects such as **loose** connections or **scorched** cables must be rectified **immediately**. **Call a skilled electrician or our Customer Services**.

A **second** person must be at side in order to unplug or to control the emergency stops if maintenance or repair requires working on live parts.

The work area must be blocked off using a red and white **safety chain** and a danger sign. Use a tool that is **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.

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**Contents Chapter 3**

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3.1 Care and maintenance

3.2 Scope of supply

3.3 Description

3.4 Control box

3.5 Operating elements

3.6 The scarifying drum

3.7 The scarifying flails

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**General**

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**3.1 Care and maintenance**

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

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**3.2 Scope of supply**

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Scope of supply of the machine:

- Scarifier (BMP-335EHY)
- Filter unit
- Dust hose (Option)
- Operating manual 2 x

### 3.3 Description of the machine

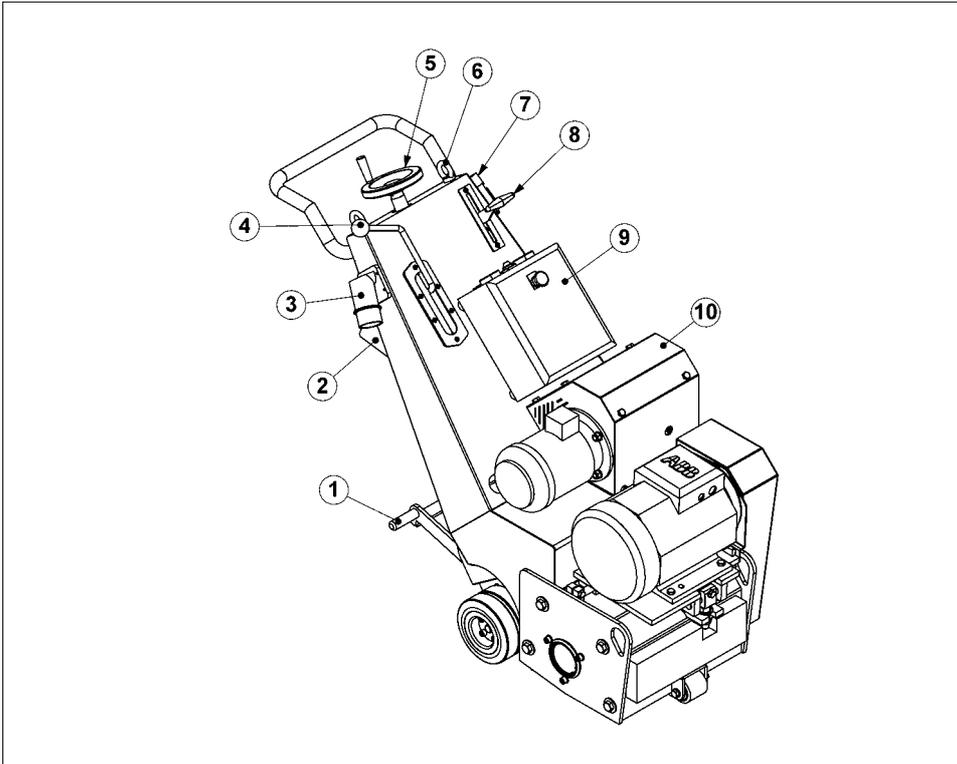


Fig. 3.1

1	Treadle of drive system	6	Lifting eye
2	Dust collector connection	7	Dead man switch
3	Socket with phase inverter	8	Driving lever
4	Quick lift lever	9	Electrical panel
5	Handwheel working depth	10	Hydraulic pump housing

The **Blastrac** scarifier of the range of BMP-335EHY will be supplied, dependent on your request, with an electrical motor 400 V or with a internal combustion engine at a working width of 335 mm. Both are comfortable machines thanks to their hydraulic drive unit. They can reach an output of 150 m<sup>2</sup> dependent on the surface. The hydraulic drive unit can be adjust progressively forward or backward. The rugged machine can be set in on any surface: steel, wood or asphalt. You can adjust the working depth progressively and so precise that the surface will be treated with care. The scarifiers BMP-335EHY are very versatile and with the appropriate flaires they can be set in for example for the following works:

- To roughen concrete
- To clean any surface
- To scarify coatings

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## General

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- To corrugate concrete surfaces
- To scarify asphalt
- To remove road markings
- To make non-slip surfaces

A specially designed dust collection system ensures nearly dust-free operation of the machine and clean air at the workspace. Blastrac uses specially designed dust collection systems which guarantee a high cleaning level.

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### 3.4 Control box

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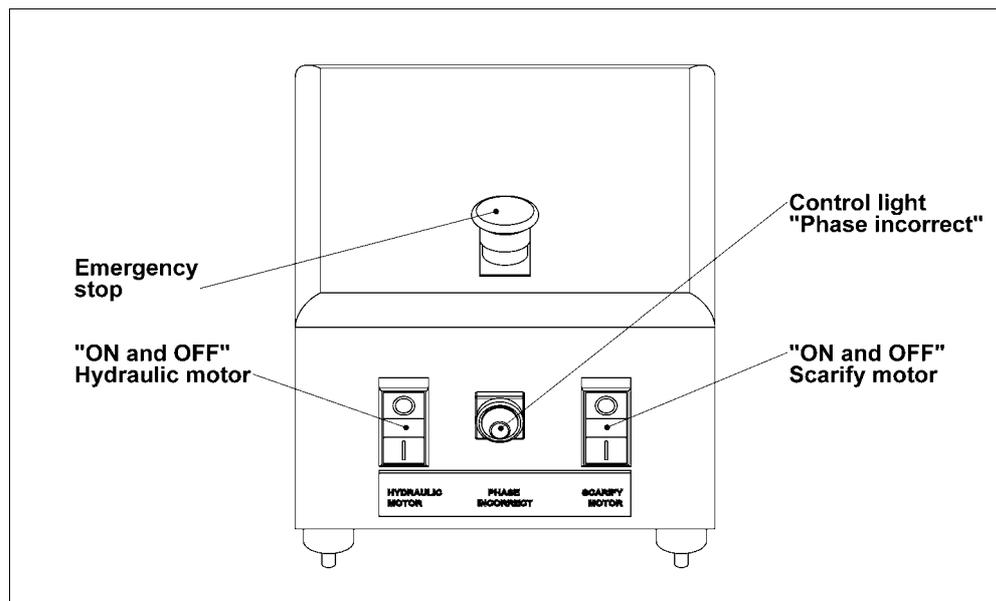


Fig. 3.2

The control box is equipped with push buttons "Hydraulic motor ON/OFF" and "Scarify motor ON/OFF", a emergency shutdown switch, Control light "Phase incorrect", and a security switch.

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#### "Hydraulic motor ON/OFF" Switch

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Pressing the "Hydraulic motor ON" push button, switches the driving motor. The hydraulic motor has to be switched on before switch on the Scarify motor.

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**General**

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**"Scarify motor ON/OFF" Switch**

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Pressing the " Scarify motor ON" push button, switches the scarify motor. Before switching on the scarify motor, the treadle (see pos. 1 figure 3.1) of the drive system must be in downwards position.

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**Emergency touch switch**

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The emergency shutdown is a red mushroom-shaped press switch. Pressing this switch immediately interrupts power supply to the scarify and hydraulic motor.

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**Control light "Phase incorrect"**

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The phase inverter in the socket (see Fig.3.1, pos.3) serves to adjust the phase when the control light "Phase incorrect" lights up

Before switching on the machine the scarifier must be lifted with the quick lift lever (pos. 4 Fig.3.1) in order to prevent a start or rather a run out of the motor under full load.

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## General

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### 3.5 Operating elements

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#### The Quick lift

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The **Blastrac** scarifier BMP-335EHY has a quick lift (Fig. 3.1 Item 4). The scarifier can be lift with the quick lift lever without changing the working depth to transport or to remove it. Before switching on the machine, the scarifier must be lifted with quick lift in order to prevent a start or rather a run out of the motor under full load.

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#### The progressively deep adjustment

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The working depth will be adjusted through turning the adjust wheel or handwheel (Fig. 3.1, Item.5), so that every tool may grip (scrape) correctly and you will reach the requested quality of finish. The progressively depth adjustment enables the flaires to impact on the surface being treated only at the required and necessary depth. The scarifying depth must be adjust, considering the surface to be treated, so that the flaires will be unhindered thrown up through the centrifugal force and they can free turn over lateral axle. When the deep adjustment is correctly selected, the scarifier will run quiet and constant. Oval worn flaires as well as broken drum axle indicating a too "high" scarifying deth adjustment. Do not set the machine so the flails causing high vibration , this indicates not enough clearance between flail and axle.

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#### The drive unit control lever

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The drive unit control lever (Fig. 3.1, Item.8) steers the drive unit device. The function of the drive unit control lever begins after adjusting the working depth of the machine with the quick lift. You should pay attention that the drive unit control lever is locked in neutral position before manipulating the quick lift.

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#### The drive unit clutch

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It is possible to transport the machine without electrical power by pushing up the treadle (pos. 1, fig 3.1). The drive wheels are declutched of the drive motors now. Be sure that the floor is flat, because the machine is uncontrolled now! **It is very dangerous to drive the machine on a grade or ramp when the treadle is in upwards position!**



### 3.6 The scarifying drum

The heart of the scarifier is the scarifying drum.

The assembly of the scarifying drum is very easy. Each tool will be pushed on the axle together with spacers according to the enclosed assembly plans. The spacers ensure the necessary distance between the flails. The enclosed assembly plans take into account the required lateral clearance of the flails, approximately 3 - 5 mm.

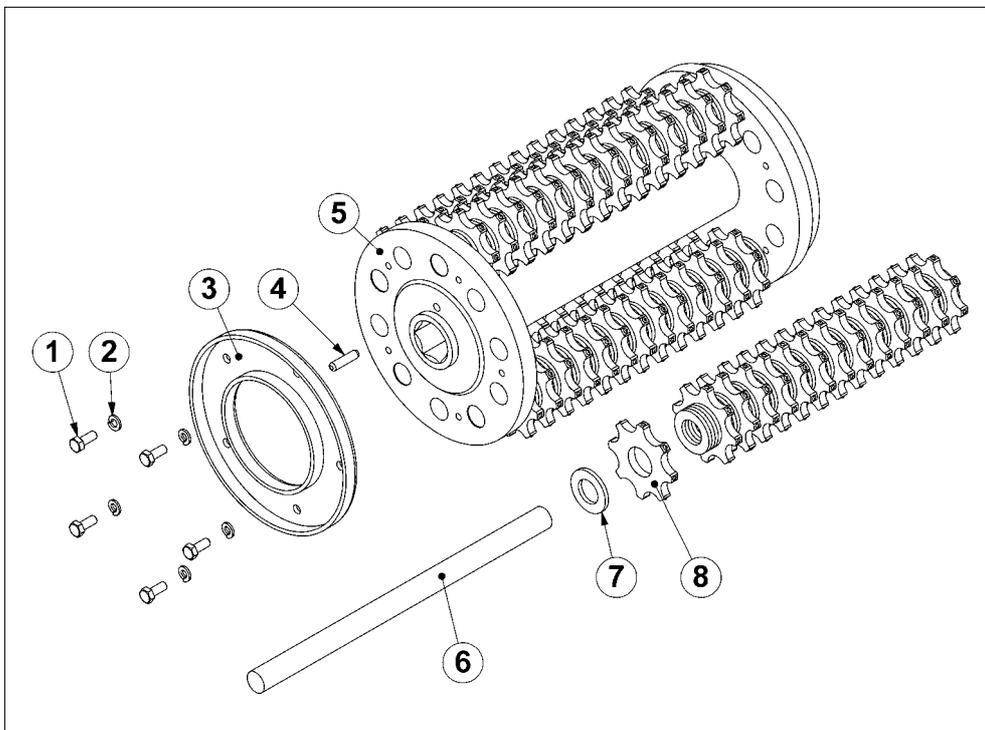


Fig. 3.3

- |   |                    |   |                    |
|---|--------------------|---|--------------------|
| 1 | Safety screw       | 5 | Scarifying drum    |
| 2 | Spring lock washer | 6 | Axle               |
| 3 | Lock plate         | 7 | Distance ring      |
| 4 | Pin                | 8 | Scarifying flaille |

**General****3.7 The scarifying flails**

Through a lot of different flails, and with few alterations, it is possible to adjust the Blastrac - Scarifier for the applications or rather for the requirements of the specific surfaces. All the machines work according the principle of the loose of a tool seated on an axle. The rotation of the scarifying drum generates a centrifugal force on the flails which are kept by the lateral axles. The flails will be thrown outwards as far as the clearance between flail and axle allow it when striking the surface particles will be taken of the surface and the flail will rebound in the max inner position. So to avoid significant wear on the axles as well as on the drum it is required that the flails still have enough clearance to the axle when striking the surface. See also chapter 3.5

3

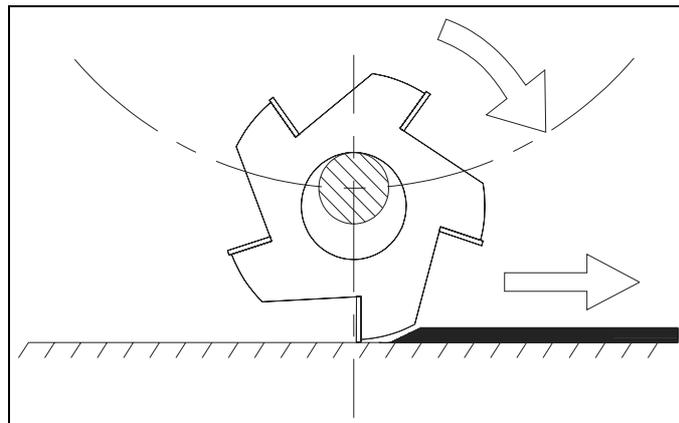


Fig. 3.4

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**Contents Chapter 4**

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4.1 Transport of the machine with vehicle

4.2 Manual mode of moving the machine

4.3 Transport with cranes or lifts

4.4 Operation of the machine while scarifying

4.5 Unit specifications



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**Transport**

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**4.1 Transport of the machine with vehicles**

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When transporting the machine proceed in such a manner that damage due to the effects of the use of force or incorrect loading and unloading is avoided. Secure the machine with a tightening belt. Use at least two belts and tighten the machine..

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**4.2 Manuel mode of moving the machine**

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In order to move the machine the drive unit clutch has to be manipulated as described in chapter 3.5.

Now the machine can be moved by hand very easy.

The has to be machine is to be transported after being separated into:

- Scarifier
- Filter unit
- General accessories

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**4.3 Transport with cranes and lifts**

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If you have to transport the machine with **hoists** like crane or lifts, pay attention to the max. load that these devices may carry. Use only allowed and homologated sling tools. **Notice the machine weight** from **chapter 1.2 "Unit specifications"** or rather from the shield-type you'll find bolted to the machine.

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**4.4 Operation of the machine while scarifying**

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The machine will be operated while scarifying in accordance with the instructions given in Chapter 5 "Initial operation".

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**4.5 Unit specifications**

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Model variant	<b>BMP-335EHY</b>
Dimensions in mm L x W x H	1400 x 605 x 1075
Weight	405 kg

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**Contents Chapter 5**

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5.1 Preparations for initial operations

5.2 Initial operations

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## Initial operation

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### 5.1 Preparation for initial operations

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Before switching on make sure that all existing protective devices are mounted and that the filter unit is connected correctly.

Handle all plugs, cables, hoses and operating devices with care. Avoid any contact with live wires.



If problems with the current supply arise during the assembly or the start up, call a qualified person for help. Work on electrical equipment may only be undertaken by qualified personnel.

Regular inspection is important in order to avoid downtimes. 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 scarifying unit for foreign bodies and remove them.
- ☑ Check the scarifying drum, housing and fastening screws or damages and wear.
- ☑ Check the tightness of the hose connections and the condition of the hose (if necessary).
- ☑ Make sure the dust container of the filter unit is empty.
- ☑ Check the electrical connections for dirt and foreign body deposits.
- ☑ Check the driving motors for dirt and other contaminants.

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**Initial operation**

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



- ☑ Put the scarifier and the filter unit on the surface to be treated. In order to move the machine manually, manipulate the quick lift as described in chapter 3.5. Put the treadle of the drive system in ‘
- ☑ When machine is in place set the quick lift into down position and arrange the depth adjustment by the handwheel so the flails just slightly touching the ground. Job depending adjustment needs to be done after the start up procedure as described in the following paragraphs. (Initial Operations 5.2) Set the quick lift back into the upwards position.
- ☑ Check the main power cable and the dust hose for damage. Replace or repair all damaged parts before starting the machine.
- ☑ Connect the scarifier and the filter unit with the dust hose. Use hose clamps at the connections.
- ☑ Connect the electric cable of the scarifier with the site supply (only by electric driven units).
- ☑ Connect the electric cable of the filter unit with the site supply.

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## Initial operation

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### 5.2 Initial operations

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All persons in the proximity of the machine, while it is working, must wear ear protectors, safety glasses with lateral protection as well as safety shoes. The operator is obliged to wear tight protective clothing.

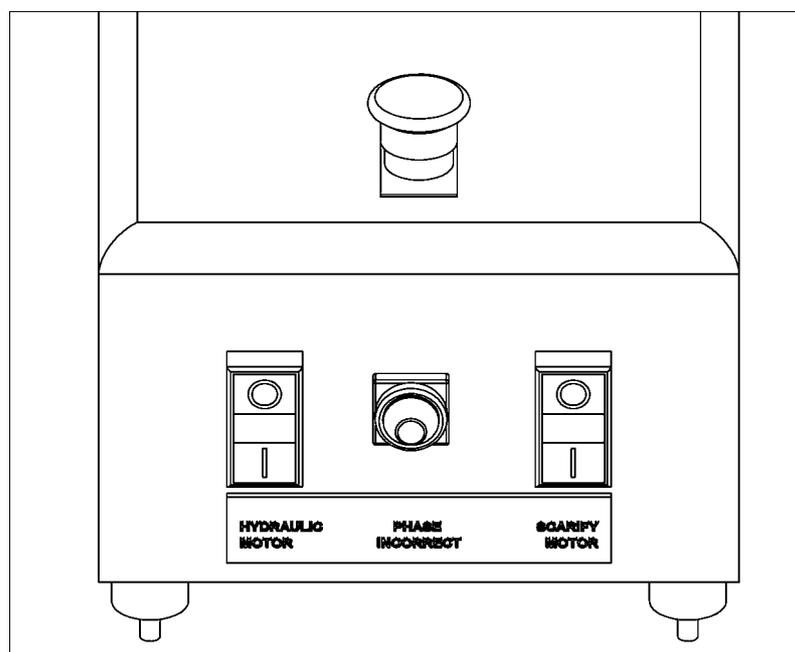
The start of the scarifier and the filter unit (if available) is effected in the following sequence:

#### 1 Switching on the filter unit

- Main switch of the filter unit "ON".

#### 2 Initial operation of the scarifier

- Check that the scarifying drum is lifted up by the quick lift.
- Check deadmans switch and arrange loop around your wrist
- Check that the emergency shutdown switch is not actuated.
- Press the push button "Hydraulic motor ON".
- Press the push button "Scarify motor ON".



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**Initial operation**

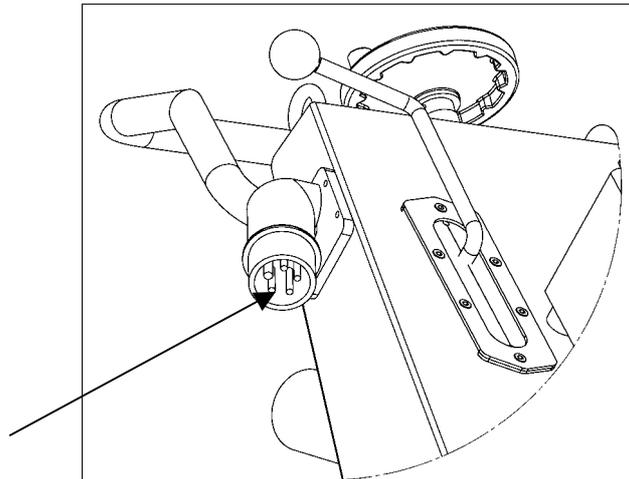
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- ☑ When you start the machine check the turning directions of the drive motor. (See turning directions arrow on the motor housing).

The scarifier goes forward for a short-erm in case of wrong turning direction of the driving device. It is possible that it drives on suddenly in the opposite direction without adjusting the drive unit control lever. In this case you can only stop the scarifier with the emergency switch.



- ☑ In case of wrong turning direction, stop the machine with the emergency switch. Turn the phase inverter in the socket in order to change the sense of rotation.



- ☑ Switch on the machine again. The operating status will be reached in 6 sec. more or less. (Automatic star delta change-over).
- ☑ Let down now the scarifier with the quick lift.
- ☑ Dependent on the surface to be treated, you can adjust now the scarifying depth with the handwheel until you have reached the required surface profile.
- ☑ Readjust the machine by the handwheel if it runs harshly. Adjusting the machine so it starts vibrating or hammering hardly means you have to reduce the depth adjustment by the handwheel. Keep going without readjusting means to have a negative effect on the material of the machine. It does not generate more performance.

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## Initial operation

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- ☑ Now , after this adjustment you can adjust the travel speed with the drive unit control lever. The machine can run forward and also reverse.
- ☑ The advancing speed is dependent on the conditions and the required surface profile of the surface to be treated.
- ☑ If the protective motor relay is activated press the reset switch in order to reset it.



- ☑ Safety information  
In case of an emergency the machine will be stopped (apart from the emergency switch) pulling out the security pin by the cord of the security switch.  
The operator has to arrange the loop of the security switch around his wrist in order to achieve this additional safety feature.

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**Contents chapter 6**

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- 6.1 Operation
- 6.2 Rate of Feed Information
- 6.3 Recommended direction of operation
- 6.4 Switching-off the machine
- 6.5 Trouble Shooting
- 6.6 Safety shutdown
- 6.7 Restarting after a fault
- 6.8 Proceedings- prior and after stationary period

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**Operation**

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**6.1 Operation**

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Normal start-up and operation of the scarifier BMP-335EHY isn't different from the procedure described in Chapter 5 "Initial operation".

Carry out scarifying operation in parallel tracks in such a way that the dust hose and electric cable do not become twisted.

Figure 6.1 shows the recommended scarifying paths leading away from the filter unit.

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 speed of the scarifier is important for a good result. In the case that the surface has different characteristics (e.g. different hardness or different coating thickness), a uniform result can be achieved by varying the speed during operation.

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**6.2 Rate of Feed Information**

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Speed adjustment depends on conditions and the required surface profile of the surface to be treated.

Observe the surface in order to set the correct speed and vary the speed dependent on the required penetration depth and profile achieved.

### 6.3 Recommended scarifying direction

- Position the filter unit near to a power supply connection.
- Place the scarifier near to the filter unit and spread out the hose as shown in fig. 6.1.
- Work with the scarifier, with the hose spread out in the opposite direction, repeating the process away from the filter unit.

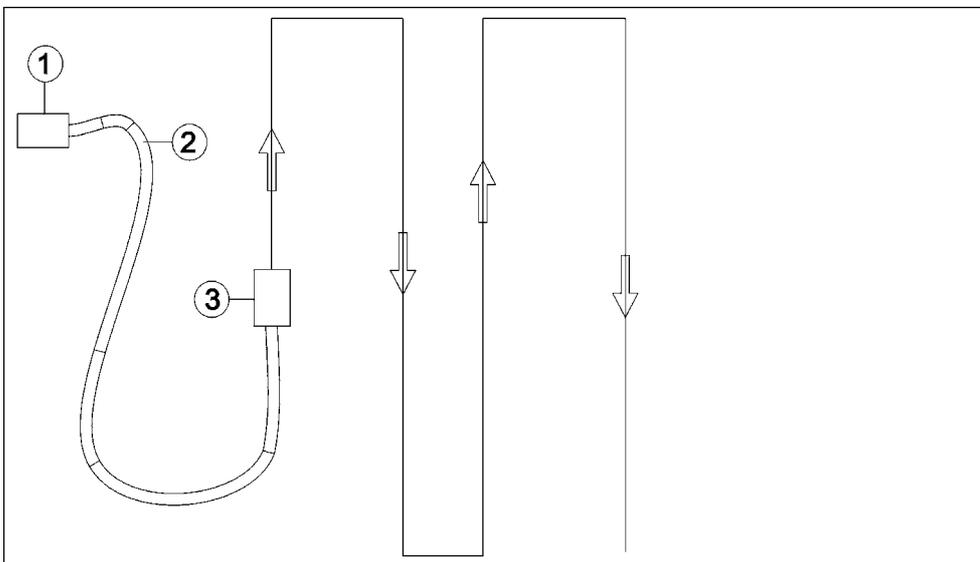


Fig. 6.1

- 1 Filter unit
- 2 Dust hose
- 3 Scarifier

- Travel stepwise over the work area considering the service length of the dust hose.
- Finish the scarifying process by scarifying the area where the filter unit originally stood.
- In case of heavy uneven floors its is suitable to repeat several times the scarifying process.

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**Operation**

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**6.4 Switching-off the machine**

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- ☑ Lift the scarifying drum from the surface by the quick lift.
- ☑ Push the red button
- ☑ Switch of the connected filter unit.
- ☑ When the **Blastrac** scarifier is put out of operation for a longer period of time, pull out the mains plug and cover the machine with a plastic foil.



Make sure that all turning machine parts came have come to standstill before any inspection or maintenance works are started.  
**Note the prescribed safety off position . (Chapter 2.5)**

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**6.5 Trouble Shooting**

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**6**

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

First put the machine to its **Safety off position**. Afterwards start searching for the fault.

---

**6.6 Safety shutdown**

---

The machine has to be into its “**Safety off position**” before starting repair works. See Chapter 2.5 “Safety instructions”.



---

**6.7 Restarting after a fault**

---

See Chapter 5 “Initial operation”.



---

**6.8 Proceedings- prior and after stationary period**

---

**Before a long standstill period**

- Switch off the machine (see Chapter 6.4).
- Protect the electric motors from moisture, heat, dust and shocks.
- Clean the machine and cover it with a plastic foil.



6

**After a long standstill period**

See Chapter 5 “Initial operation”.



---

**Contents Chapter 7**

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- 7.1 Recommendations
- 7.2 Maintenance and inspection list
- 7.3 Repairing
- 7.4 The scarifying drum
- 7.5 Drum Assembly Layout
- 7.6 Drum Replacement
- 7.7 Influences on the pattern of the scarifier
- 7.8 Belt drive
- 7.9 The Motor
- 7.10 Lubrication
- 7.11 Traction drive

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## Maintenance

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### 7.1 Recommendations

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**Prior to any repair works on the machine and its drives, secure the machine against unintentional switching-on. Put the machine to its safety off position. Chapter 2.5**

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.

Operational safety and service life of the machine depend, among other things, on proper maintenance.

The following table shows recommendations about time, inspection and maintenance for the normal use of the 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 must be carried out at least once a year.

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.

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

**Follow additional operating and maintenance of OEM if included during your service and maintenance work.**

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**Maintenance**


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**7.2 Maintenance and inspection list**


---

Operating hours/ time period	Inspection points, maintenance instructions
12 h after repairing	Check all accessible screw connections for tight seat.
daily and prior to starting work	Check all safety devices working adequate. Check the power supply cable for damages. Check the hose to the filter for damages. Check whether there is any foreign matter in the scarifying drum. Clean the scarifying drum specially in case of moist surfaces. (Concrete deposits in the scarifying drum). * Make sure that the dust container of the filter is emptied. Check the scarifying drum, lateral axles, tools and housing for wear. Check the tension of the belt and the V-belt, stretch again if necessary. Check the oil-level in the hydraulic oil reservoir.
½ year	Full overhaul and cleaning of the complete machine.

\* Moist subsoil mill without Dust collector

---

**7.3 Repairing**


---

As already mentioned in Chapter 5 “Initial operation” we recommend to execute the first repair works on the machine having support of **Blastrac** personnel. Doing this together, your maintenance personnel gets the opportunity to be trained intensely.



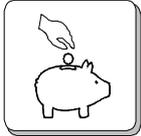
We will describe only regular maintenance works that could occur within the bounds of regular maintenance or work that is required to replace wear parts.

---

## Maintenance

---

If you replace parts yourself for specific reason, 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 works on the machine and its drives, secure the machine against unintentional switching-on. Pull out the mains plug or rather the spark plug connector in order to do this.

---

### 7.4 The scarifying drum

---

The scarifying drum is a very important component of your scarifier, due to this you should pay special attention while maintaining and repairing.

The main shaft has to be cleaned and lubricated when you replace the scarifying drum, so that any rust or sediment can't complicate your work when you change the drum the next time.

If the scarifier drum should be disassembled in order to rearrange it in a different way or to replace wear parts, it is absolute necessary to observe the quantity of flails and spacers as described in the assembly plans shown in chapter 10. Also, pay attention that the bores on the cover plate for the lateral axle are not worn out and all screws are tightened. In order to obtain a uniform and perfect scarifying pattern on the surface, you need to adjust the correct scarifying working depth, watch correct assembly of the scarifying drum as well as the appropriate selection of tools for the surface to be treated.



If the scarifying drum is not uniform assembled the machine will become unbalanced and excessive wear, will arise.

**Blastrac** will not feel responsible for any faulty parts, that are damaged caused by inappropriate assembly.

**Following important key factors affect the scarifying pattern:**

- The selected speed must be suitable for the conditions of the surface.
- You need to choose appropriate tools for different application.

---

**7.5 Drum Assembly Layout**

---

We have tested the assembly layout examples enclosed in this manual they will result in the best possible pattern being achievable.

The selection of the flail type as well as the arrangement on the drum assembly is most important to obtain an optimum work with the scarifier BMP-335EHY.

Incorrect arrangement of the assembly will cause high wear and costs as well as insufficient machine performance.  
**See assembly layouts at chapter. 10.**



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**Maintenance**

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**7.6 Drum Replacement**

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**Prior to any repair works on the machine and its drives, secure the machine against unintentional switching-on. Put the machine to its safety off position. Chapter 2.5**

**Disassembly:**

- 1 Loosen the fastening screws on the side plate fitted to the housing and remove them.
- 2 Pull off the side plate
- 3 Pull out the drum sideways towards you on the shaft.

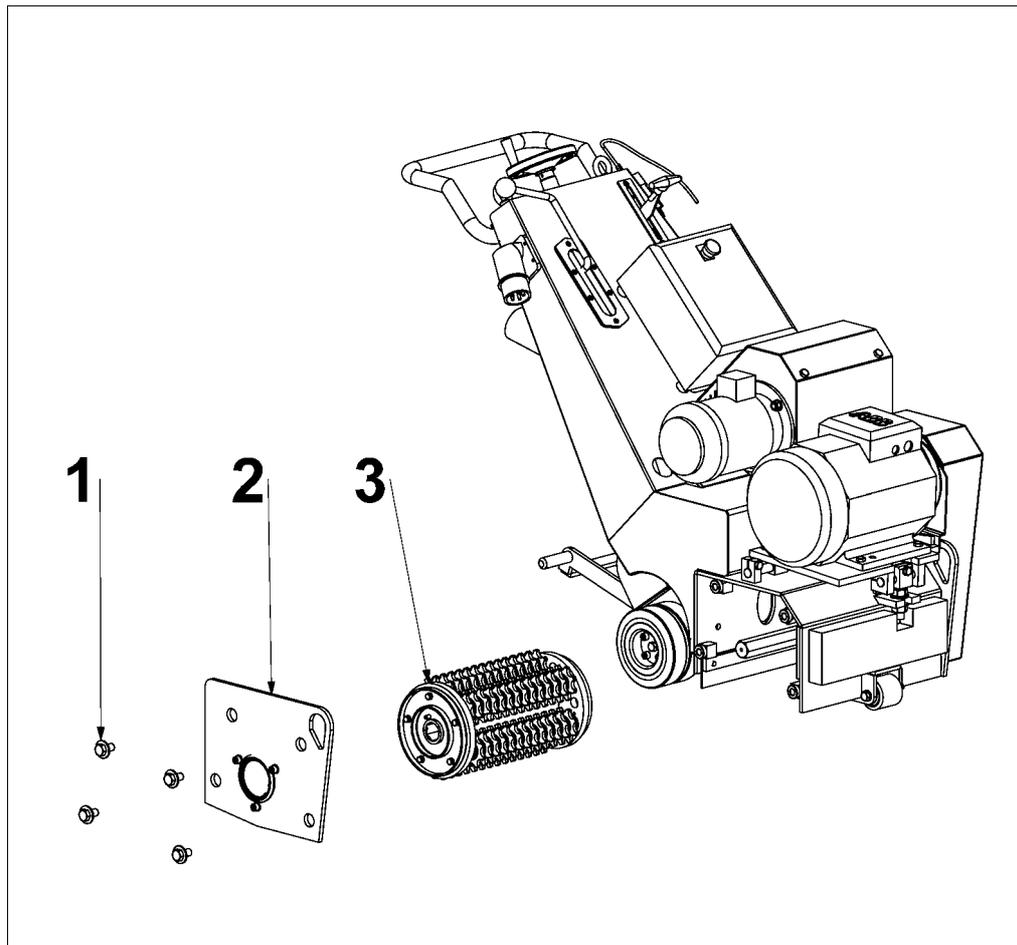


Fig. 7.1

**Assembly:**

- 1 Clean the main shaft and lubricate it uniform
- 2 Push the scarifying drum on the drive shaft until it hits its heel.
- 3 Fit back the side plate and pay attention to have the correct position to avoid damaging the bearing that's located in the side plate.

**Never use the scarifier without a side plate fitted or incorrect fitted plate.**



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**Maintenance**

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---

**7.7 Influence on the pattern of the scarifier**

---

The scarifying pattern depends on the surface being treated the change of working depth, tool selection and selected speed will mostly have influence on the result.

Depending on the required surface structure you will have to change the tools (Flails) .

In order to get the best result compare the individual results of the tools. Do your testing having the same speed selection in order to get comparable visual results.



A check on the scarifying pattern should always being done after new or other types of tools have been fitted. Just that way efficient work is possible, will prevent from unnecessary wear and repair cost's.

## 7.8 Belt drive

Prior to any repair works on the machine and its drives, secure the machine against unintentional switching-on. Put the machine to its safety off position. Chapter 2.5

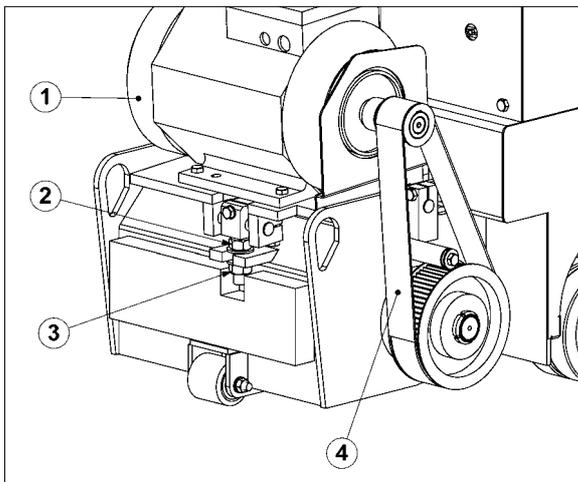


Fig. 7.2

1	Motor
2	Counter nut
3	Adjusting nut
4	Belt

### Belt tension

The correct belt tension is of utmost importance in order to obtain a perfect power transmission and to reach the usual working life of the belt. Too low or too high tension causes frequently a premature breakdown of the belt. Excessive belt tension results in damaged bearings at drives or scarifying drums.

If you change the height of the motor plate by turning the adjusting nut (picture 7.2, Pos.3), the tension of the belt is changing. For that reason you should set the belt tension like explained in the following chapter "Belts dismount – mount".

---

**Maintenance**

---

---

**Belts dismount and Belts mounting**

---



**Prior to any repair works on the machine and its drives, secure the machine against unintentional switching-on. Put the machine to its safety off position. Chapter 2.5**

**Dismantling:**

1. Remove the protection cover for synchronous belt
2. Unscrew the counter nut (picture 7.2 Pos. 2) and turn the adjusting nut (picture 7.2 Pos. 3) down so that the motor plate goes down and the synchronous belt (picture 7.2 Pos. 4) is unstressed.
3. Remove the belt.

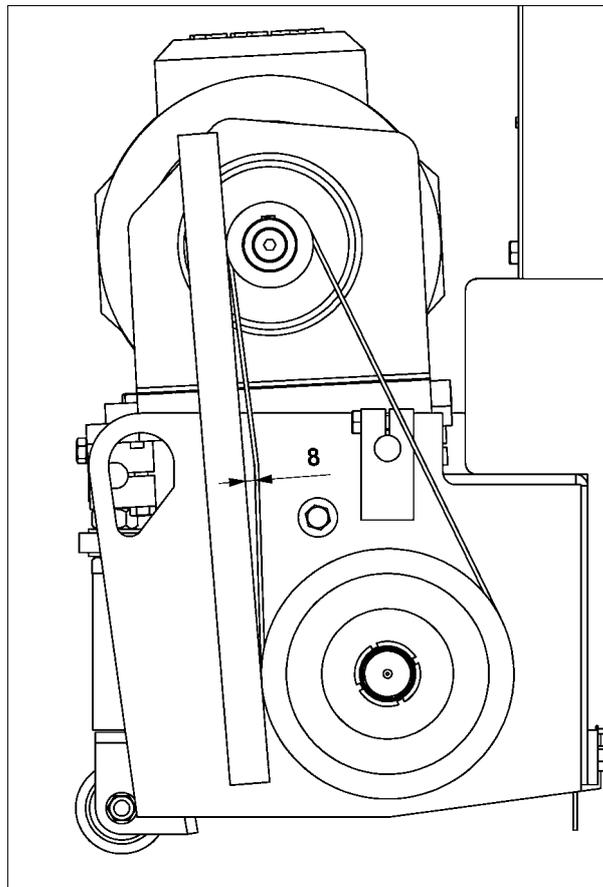


Fig. 7.3

**Mount:**

1. Put on the new belt.
2. Stretch the belt. For this turn up the adjusting nut (picture 7.2 Pos. 3) and check the tension by pressing the thumb on the belt. The belt has the correct tension if you could press it in for approx. 8 mm (picture 7.3). After this fix it with the counter nut. (picture 7.2 Pos. 2).
3. Finally mount the belt cover.

---

**7.9 The motor**

---

The motor is designed for a long working life

Damages at the motor can be perceived through unusual noises, malfunctions or rather interruptions.

If the malfunction can not be repaired, inform please the **Blastrac** service centre.

---

**7.10 Lubrication**

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The observance of our lubrication instructions will preserve you from premature maintenance and repair works on your machine.

Dirt and foreign bodies could considerably reduce the working life of the bearing or of other moving parts on the machine. Therefore the lubrication points must be thorough cleaned before lubricating.

Lubrication and all required works have to be done while machine is disconnected and in **Safety off position**.

---

## Maintenance

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### Lubrication service

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The machine will be provided with the necessary quantity of grease applied during assembly.

Independent from the initial grease fillings check regular linkages and points mentioned as follows:

Before the first start up, please take into account following points:

- Control the oil-level in the hydraulic oil reservoir (picture 7.4)
- Check the handwheel working depth adjustment for soft running.

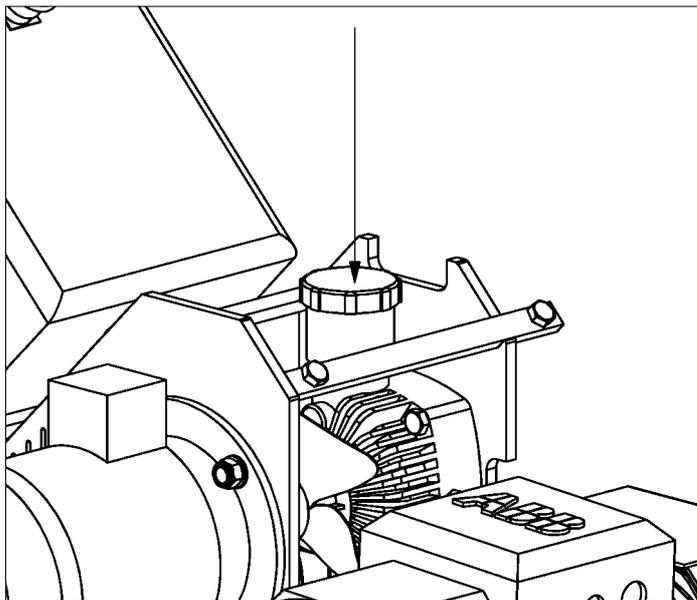


Fig. 7.4

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**Lubrication Points**

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1. Lubricator nipples under the handwheel working depth adjustment.

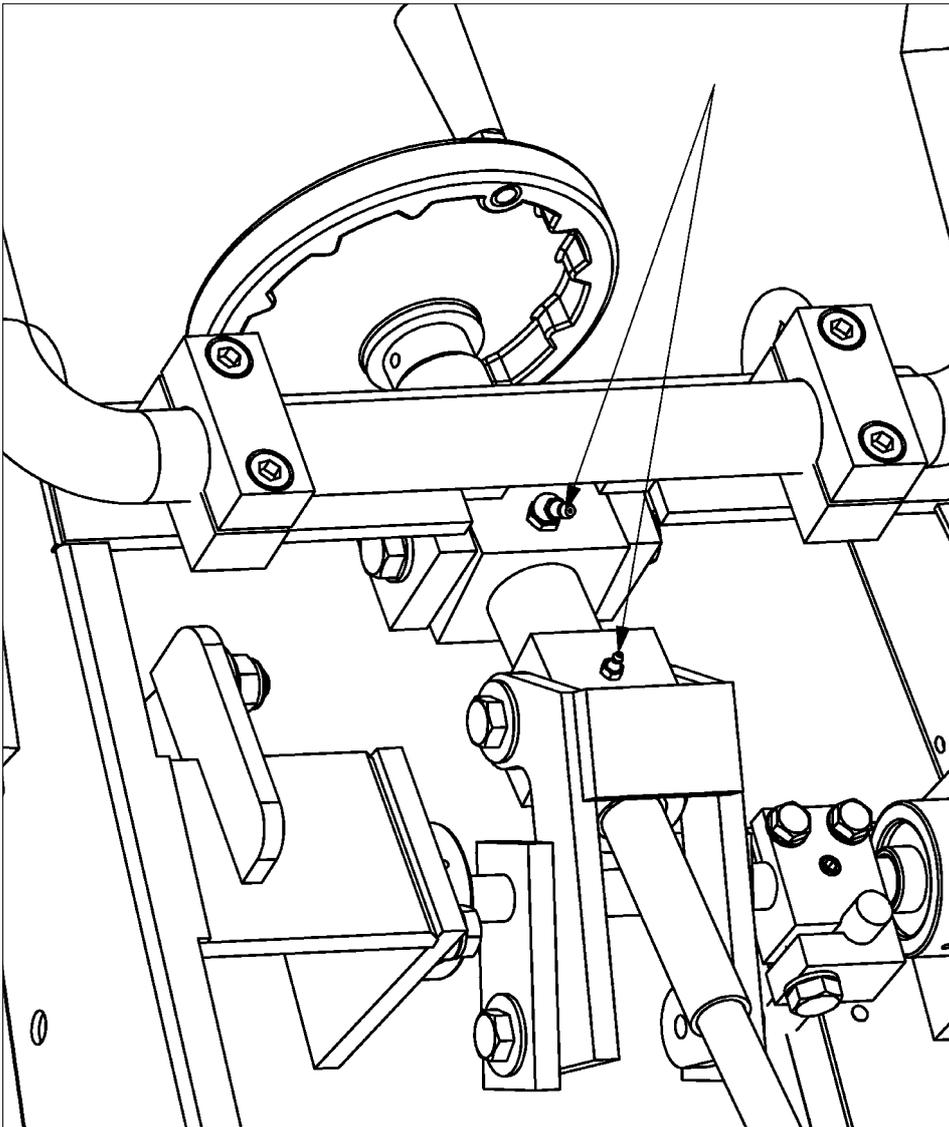


Fig. 7.5

**Maintenance**

**7.11 Traction Drive**

Disassemble the drive wheel (2), by loosen the bolt (1). Remove chain guard (4) by loosen the bolt (3).

Apply oil only in this section and clean up all parts in order to remove excessive oil.

Check regularly the correct tension of the chain. Adjust tension of the chain by loose bolts (6), turn hydraulic motor clockwise and tighten bolts again.

Apply oil behind felt seal (5) when machine is heavy moving in free-wheel position.

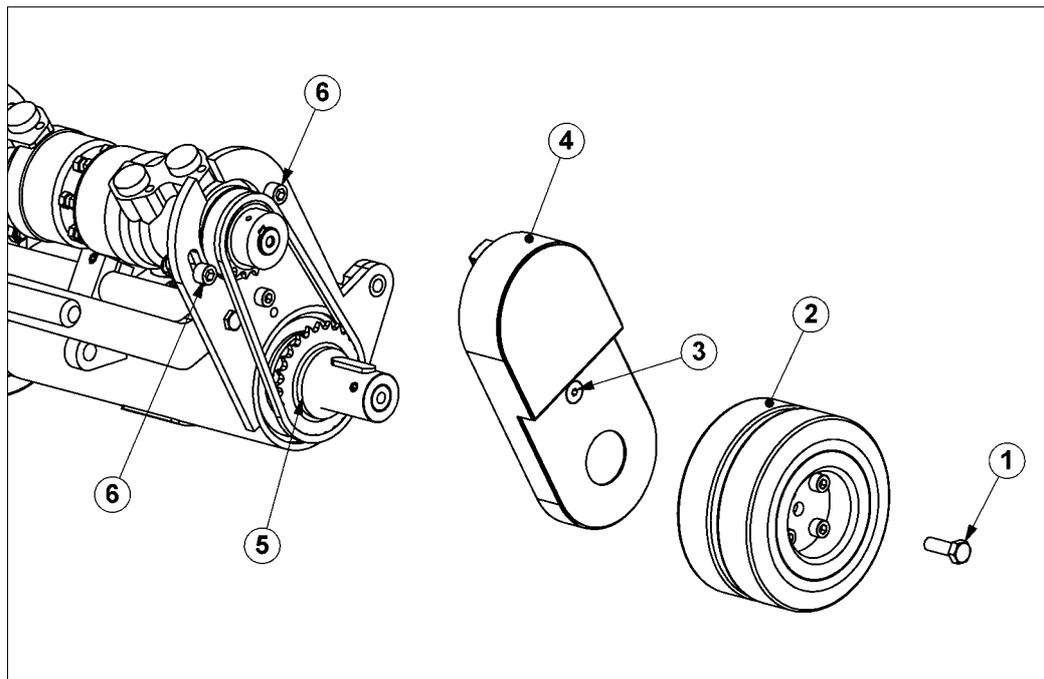


Fig. 7.6

1	Bolt
2	Drive wheel
3	Bolt
4	Chain guard
5	Felt seal
6	Bolt

---

**Contents Chapter 8**

---

8.1 Electric circuits diagrams

8.2 Hydraulic circuits diagrams

---

**Electrical system**

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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.



Order the electric items with reference to the circuit diagrams in chapter 8.1 or call a Blastrac service centre.

---

**8.1 Electric circuits diagram**

---

**PROJECT**

Client : Blastrac B.V.  
 Name : BMP NY 335

Particulars:

**SUPPLIER**

Draw.number : PJ06.03112T2B  
 Order number :

Supplier : Blastrac B.V.  
 Contact :  
 Telephone : +31(0)30-6018866  
 Telefax : +31(0)30-6018333  
 Email :

**DATA**

Arch.number : PJ06.03112T2B  
 Calc. number :  
 Status : As Built

Start of project : 13.Mrt.2007  
 Latest change : 12.Apr.2007 ( GKU )

Highest page number : 7  
 Number of pages : 7



Wire color:

Main-voltage:

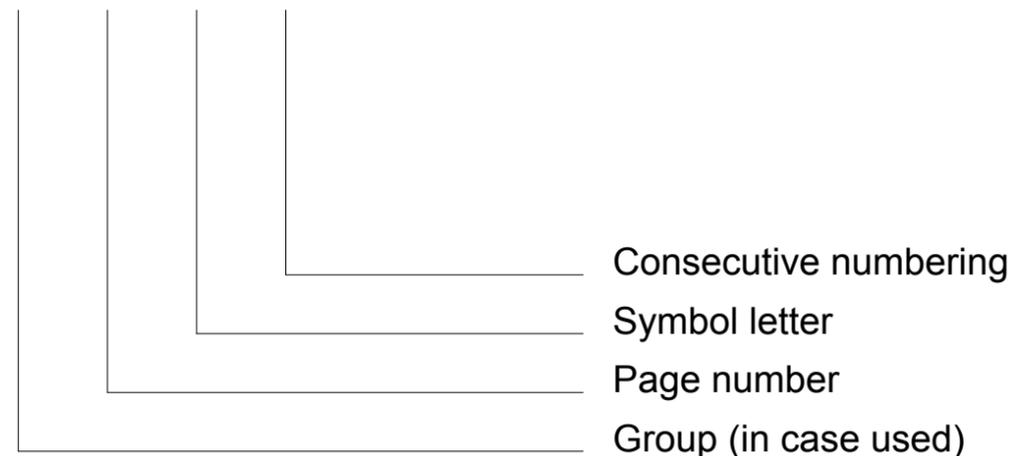
L1	-Black
L2	-Black
L3	-Black
PE / ⊕	-Yellow / Green

Control-voltage alternating-voltage (AC)

Phase	-Red
Hook-up wire	-Red
Zero	-Red

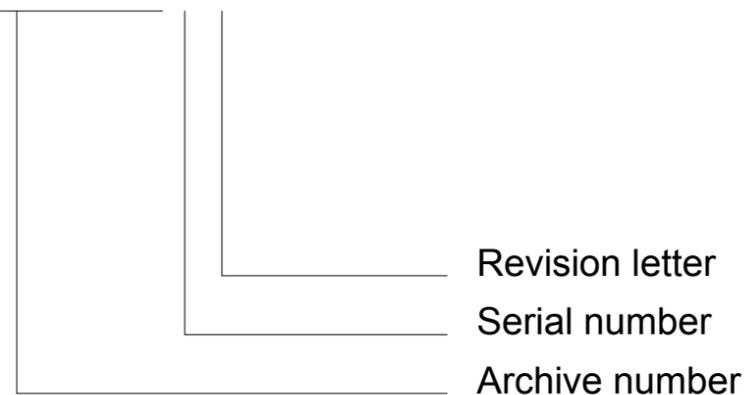
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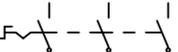
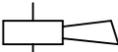
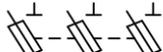
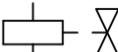
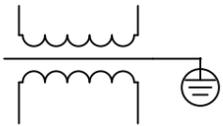
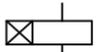
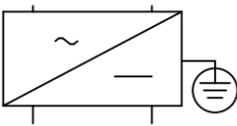
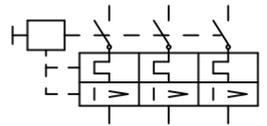
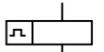
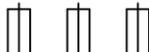
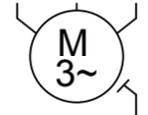
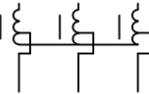
DP 5 Q 1



Archive number explanation:

PJ01.01234T1A



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		Pushbutton NO / NC			Pressure switch NO / NC		Pilot light		Main switch
		Rotary switch NO / NC			Level switch NO / NC		Horn		Fuses load divider
		Contact NO / NC		Relay		Valve		Diode module	
		NO Contact Cut-in delayed		Relay Time delayed on drop-out		Transformer		Resistance	
		NC Contact Cut-in delayed		Relay Time delayed on pick-up		Direct voltage supply		Motor safety switch	
		NO Contact Drop-out delayed		Relay Impulse		Terminal clamps			Final switch NO / NC
		NC Contact Drop-out delayed		Ammeter		Fuses			
		Emergency stop NC		Voltmeter		Fuse terminal			
		Contact NO / NC Thermal		Working hour counter		Earth-leakage switch Earth-leakage protection			
		Key switch NO / NC		Current coil		Installation automatic Short-circuit and overcurrent protection			
		Thermostat NO / NC		Motor		Autotransformer			

Revision		Start	13.Mrt.2007
Revision		Eng.	GKU
Revision		Print	12.Apr.2007
Revision		Status	As Built

Blastrac B.V.  
BMP NY 335

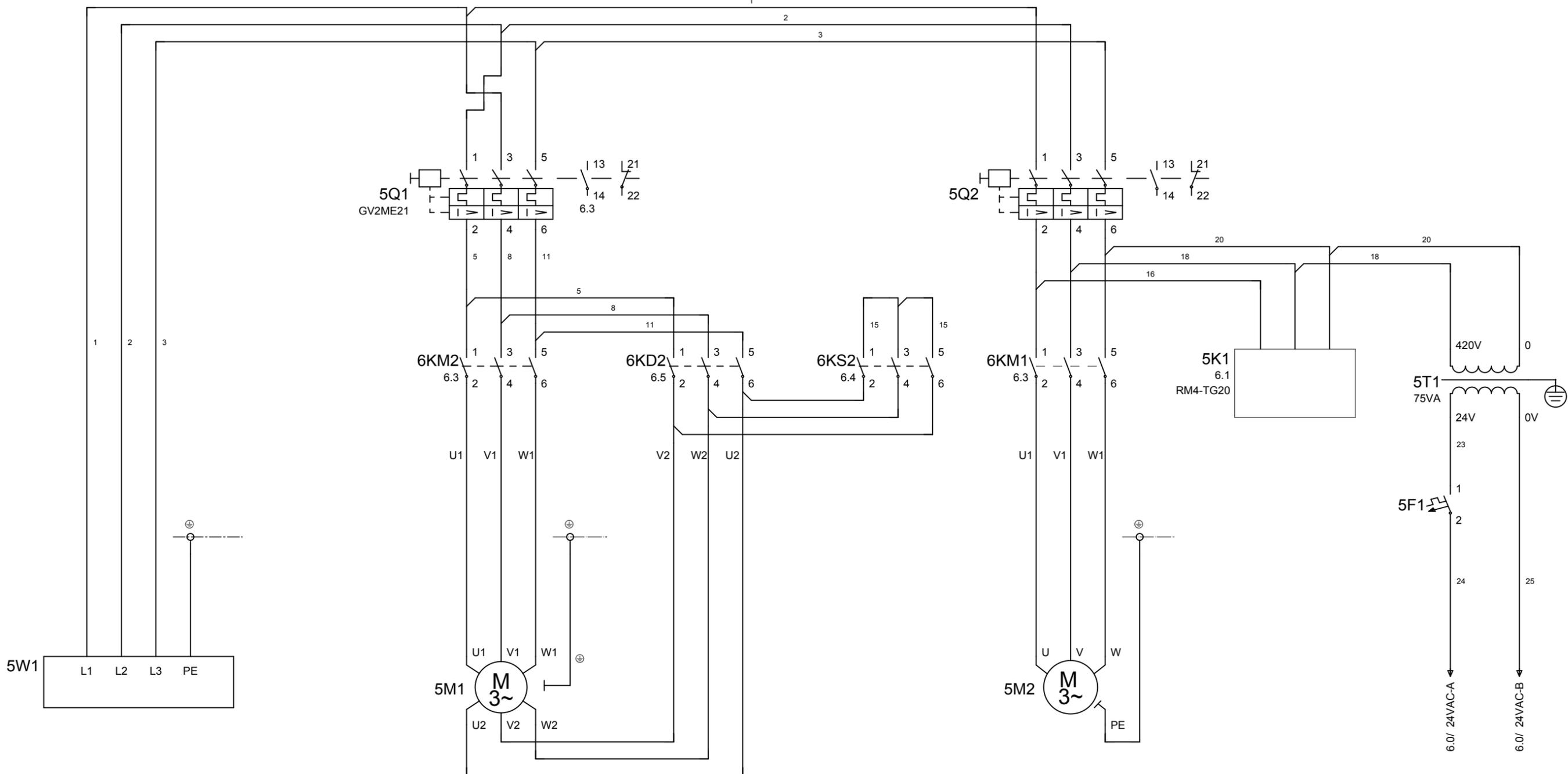


Symbol explanation

Arch.nr. PJ06.03112T2B

Draw.nr. PJ06.03112T2B

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+	
Pages	7
Page	3.1



supply  
420V 50Hz.

Motor  
11 kW / 21 A

Hydro drive  
1,5 kW 3,4 A

Phase  
sequence

Revision		Start	13.Mrt.2007
Revision		Eng.	GKU
Revision		Print	12.Apr.2007
Revision		Status	As Built

Blastrac B.V.  
BMP NY 335

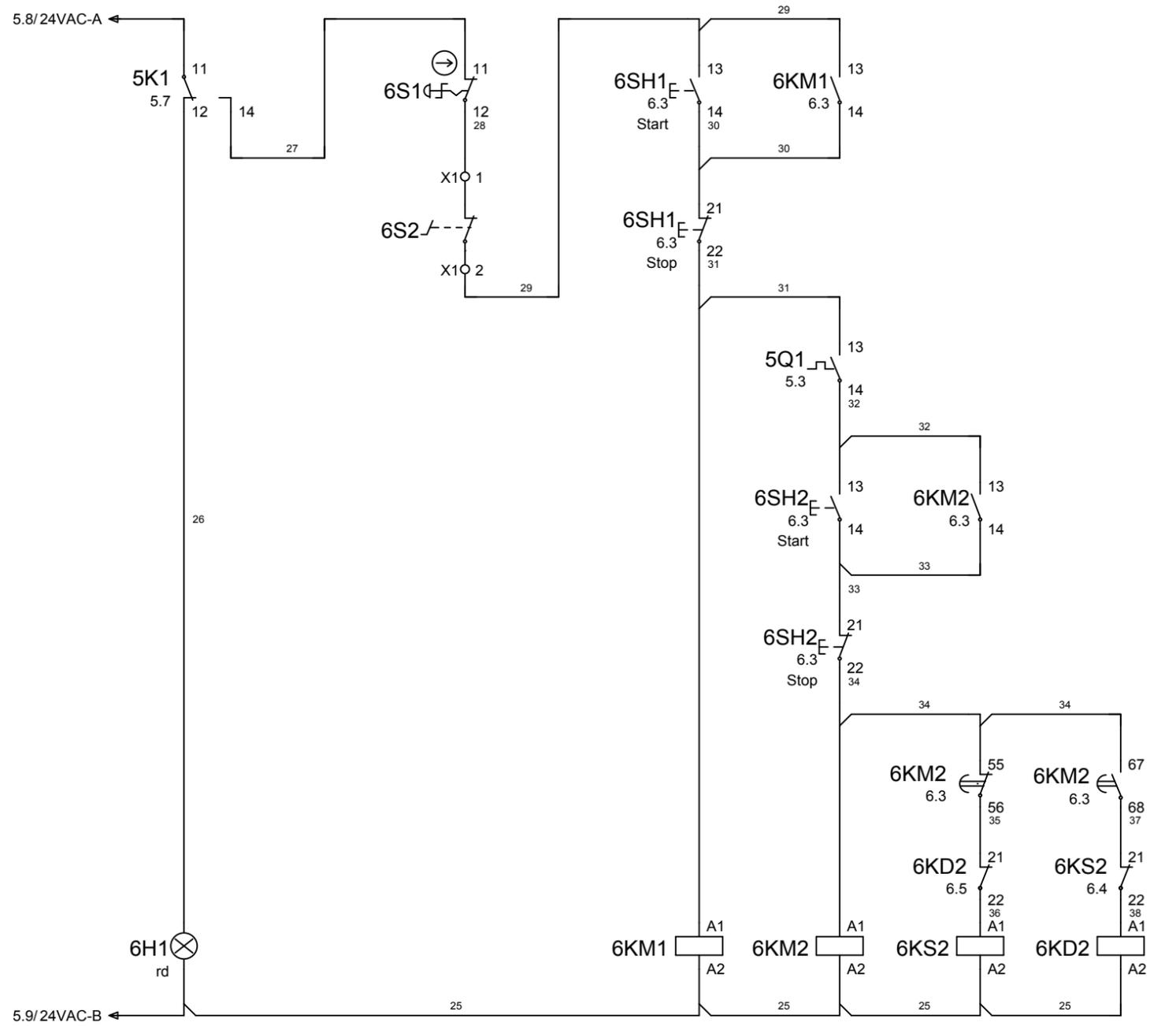


Main-voltage

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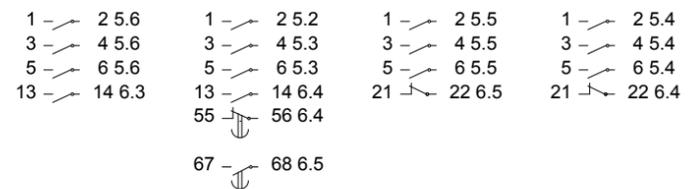
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Pages	7
Page	5



Phase  
squence  
fault

Hydrodrive Motor Star Delta



Revision		Start	13.Mrt.2007
Revision		Eng.	GKU
Revision		Print	12.Apr.2007
Revision		Status	As Built

Blastrac B.V.  
BMP NY 335



Control-voltage

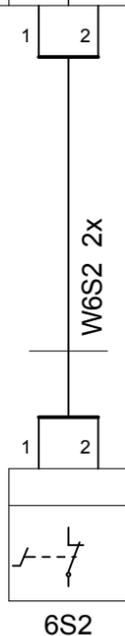
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Draw.nr. PJ06.03112T2B

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Pages	7
Page	6

# X1

Internal connection	6S1:12	6SH1:13	
Bridges			
Terminal	1	2	



**Electrical system**

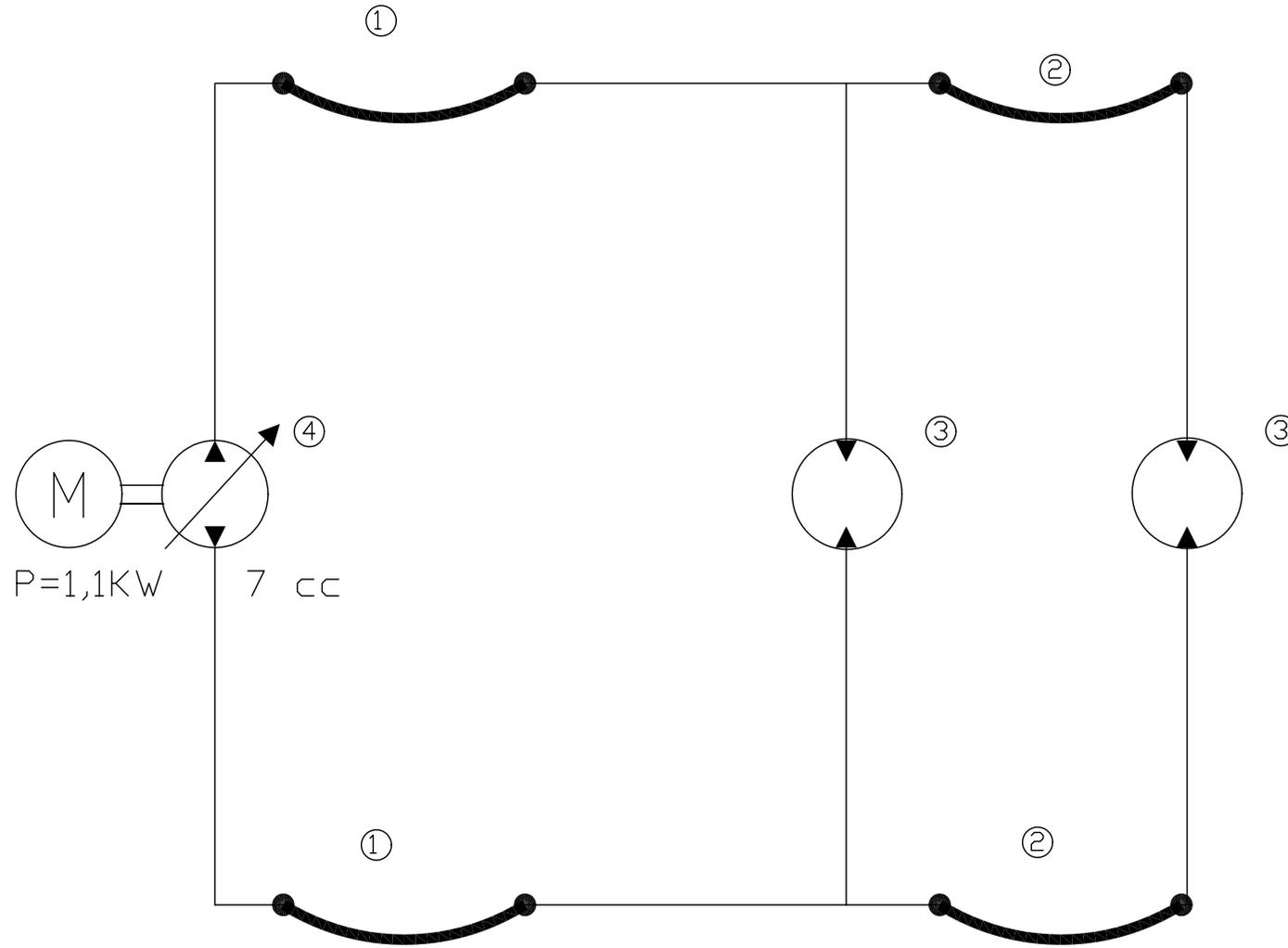
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**8.2 Hydraulic circuits diagrams**

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Item	Qty	Description	Part number
1	2	Hydraulic hose	E03996_2
2	2	Hydraulic hose	E03996_3
3	2	Hydromotor	350-4005-S
4	1	Hydraulic Pump	E03996_1



Scale:	N/A
Drawn:	Barry v Eijden
Change:	Name: Date:
First release	PS 04-01-2007

PROJECT: BMP-335EHY  
HYDRAULIEK  **BLASTRAC**  
SCHEMA

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DRAWINGNR:  
20070507

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**Contents Chapter 9**

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9.1 Fault diagnosis - scarifier

9.2 Fault diagnosis - electrical system

**Fault diagnosis**

**9.1 Fault diagnosis - scarifier**



**Prior to any repair works on the machine or its drives the machine must be secured against unintentional switching-on. Put the machine to its Safety off position.**

<b>Fault</b>	<b>Possible cause</b>	<b>Remedy</b>
Excessive vibration	Imbalance due to worn or broken flailles.	Replace all broken parts from the machine.
Unusual noise	Defective bearing	Check the bearing of the axle drive shaft and replace if necessary.
	Wrong tension of the belt	Check the tension of the belt, replace the belt if necessary
	Defective motor	Replace the motor
Excessive vibration	The scarifying capacity is too high	Reduce the scarifying depth
Reduced or no scarifying performance	Flailles have reached the maximum permissible wear	Replace the worn spare
	Inappropriate flaille for the application	Replace the flailles by appropriate flailles for the surface to be treated
Drive unit does not respond	Treadle is put down too fast	Put treadle in downwards position slowly and move machine forwards at the same time
	Too low oil-level in oil tank	Check oil-level and refill it necessary
	Wrong turning direction of the motor	Check the turning direction

---

**Fault diagnosis**


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**9.2 Fault diagnosis - electrical system**


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**Prior to any repair works on the machine or its drives the machine must be secured against unintentional switching-on. Put the machine to its Safety off position..**



<b>Fault</b>	<b>Possible cause</b>	<b>Remedy</b>
Control system does not switch on	Motor protection switch has triggered.	Check the mains power supply and next switch on again
	Dead man switch is not activated	Put in the cord of the dead man switch
	Wrong phase	Adjust phase (chapter 5.2)
Motor protection switch triggers while running	Driving performance too high	Reduce the scarifying depth
	The supply line has a phase missing	Check the supply line

---

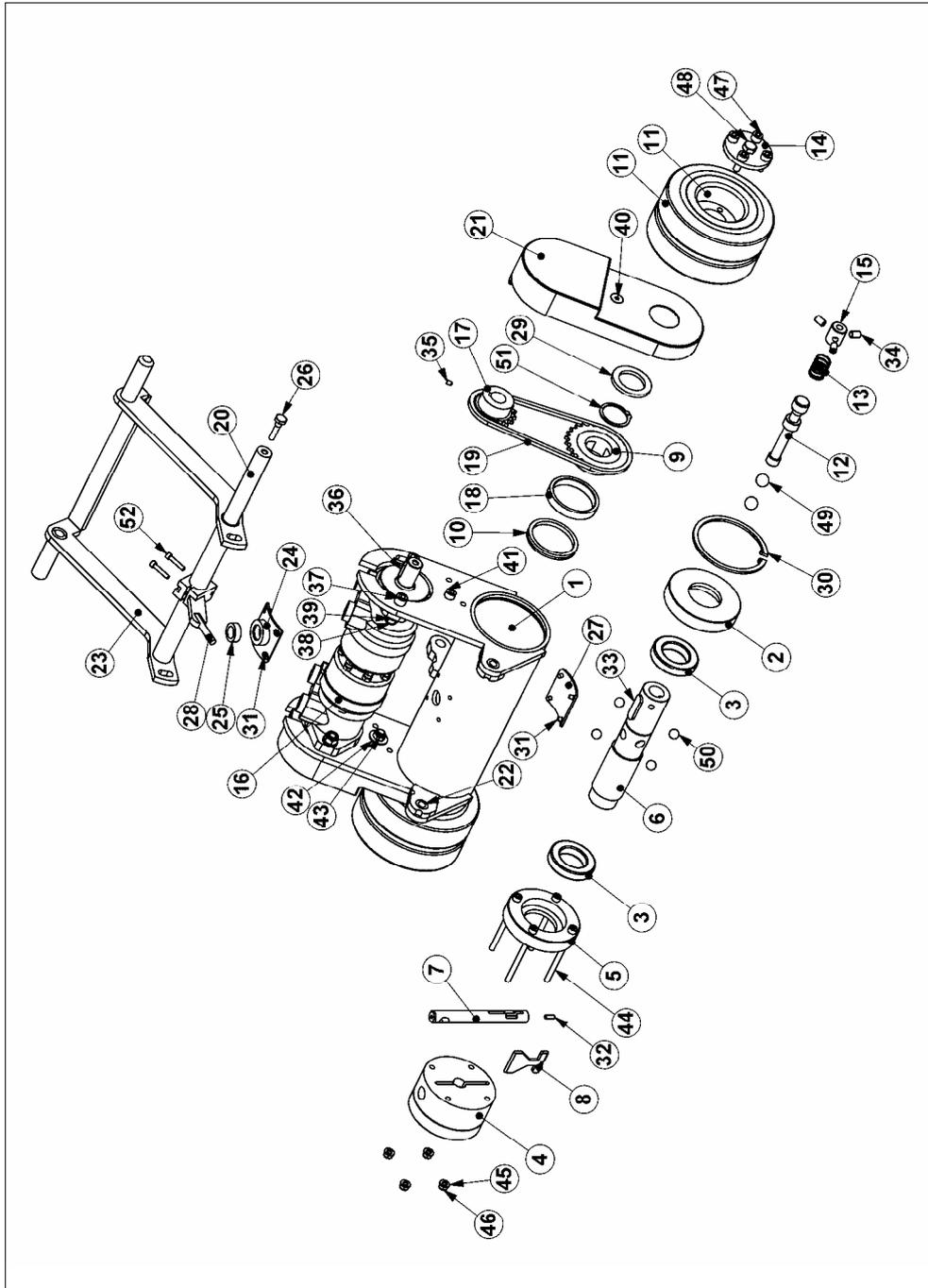
**Contents Chapter 10**

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10.1	Spare parts
10.2	Assembly plans

**Spare Parts**

**Drive unit**



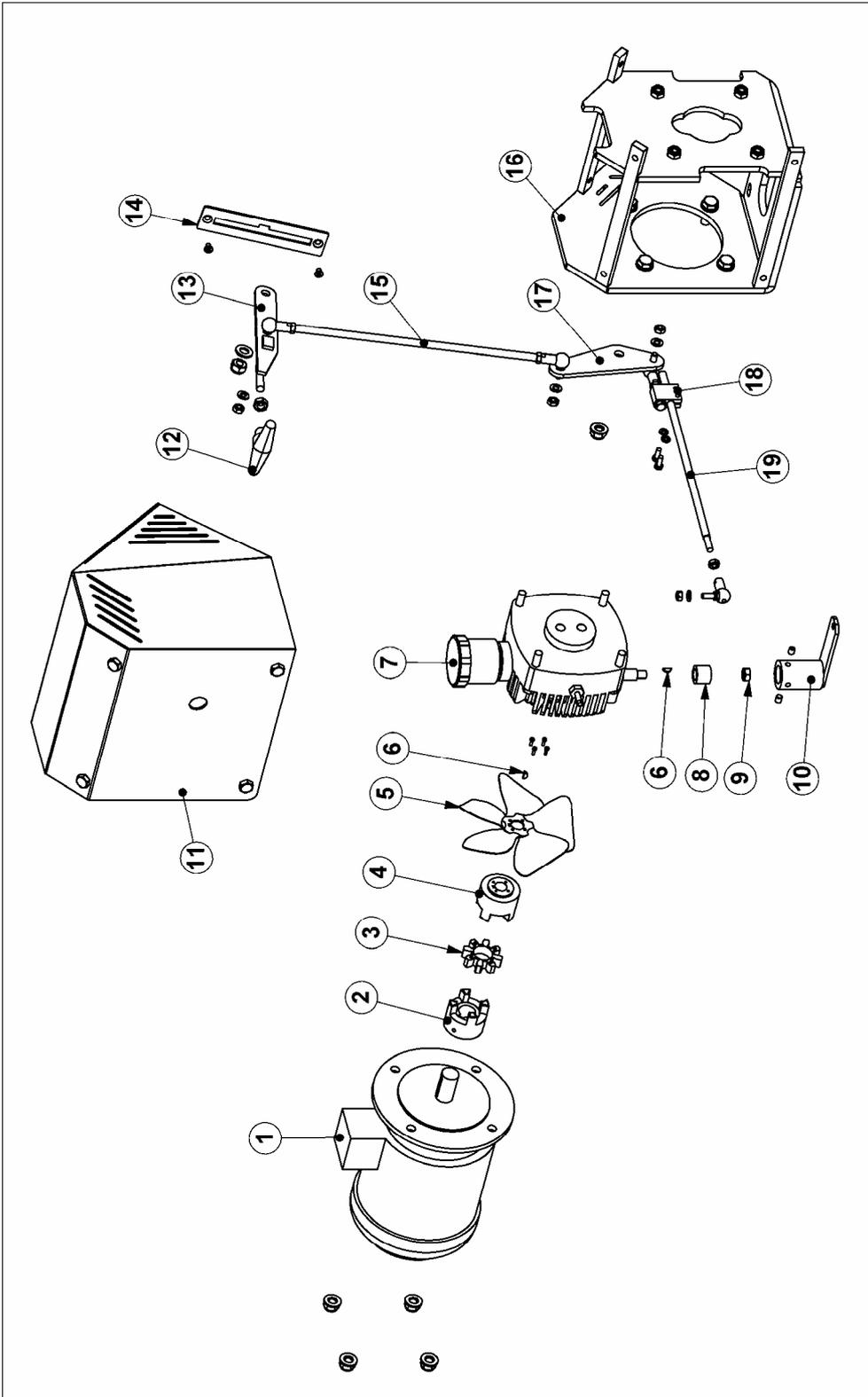
## Spare Parts

ITEM	QTY.	PART NUMBER	Description
1	1	E03854	Drive bracket
2	2	E03863	Bearing house outer
3	4	E01477	Bearing
4	1	E03855	Clutch house
5	2	E03862	Bearing house inner
6	2	E03864	Wheel shaft
7	1	E03860	Shaft slide plate
8	1	E03861	Slide plate
9	2	E03936	Bottom sprocket
10	2	E03939	V-ring seal
11	2	E03935	Wheel complete
12	2	E03865	Coupling shaft
13	2	E03942	Spring
14	2	E03869	End plate
15	2	E03866	Spring retainer
16	2	350-4005-S	Hydraulic motor
17	2	E03945	Sprocket
18	2	E03937	Distance ring
19	2	E00237 (1.5M)+ E00238 + E00451	Chain complete
20	1	E03870	Hinge shaft
21	2	E03871	Chain guard
22	2	E03943	Bush
23	1	E03948	Treadle
24	1	E03946	Dust protection
25	1	E03947	Felt seal
26	2	E04035	Hinge bolt
27	1	E04034	Cover plate
28	1	E04037	Lever
29	2	E04462	Felt seal
30	2		Circlip Ø120
31	8		M6x10 Hexagon socket screw
32	1		M6x16 Hexagon socket screw
33	2		14x9x50 Parallel key
34	6		M10x16 Hexagon socket screw
35	2		M6x8 HEXAGON SOCKET SCREW
36	2		30x8x7 Parallel key
37	4		M12x40 Hexagon Socket Head Cap
38	4		M12-Plastic Insert Nut
39	4		M12-Washer
40	2		M10x40 Countersunk Head Screw
41	2		M10x35 Hexagon Socket Head Cap

**Spare Parts**

42	2		M10-Washer Ø30
43	2		M10-Plastic Insert Nut
44	4		M8x110 Hexagon Socket Head Cap
45	4	BE0003	M8 WASHER
46	4		M8 plastic insert nut
47	8		M10x25 Hexagon Socket Head Cap
48	2		M12x35 Bolt
49	4	E03941	Ball Ø20
50	8	E03940	
51	2		Circlip Ø45
52	2		M6x30 Hexagon Socket Head Cap

Hydraulic pump & drive control

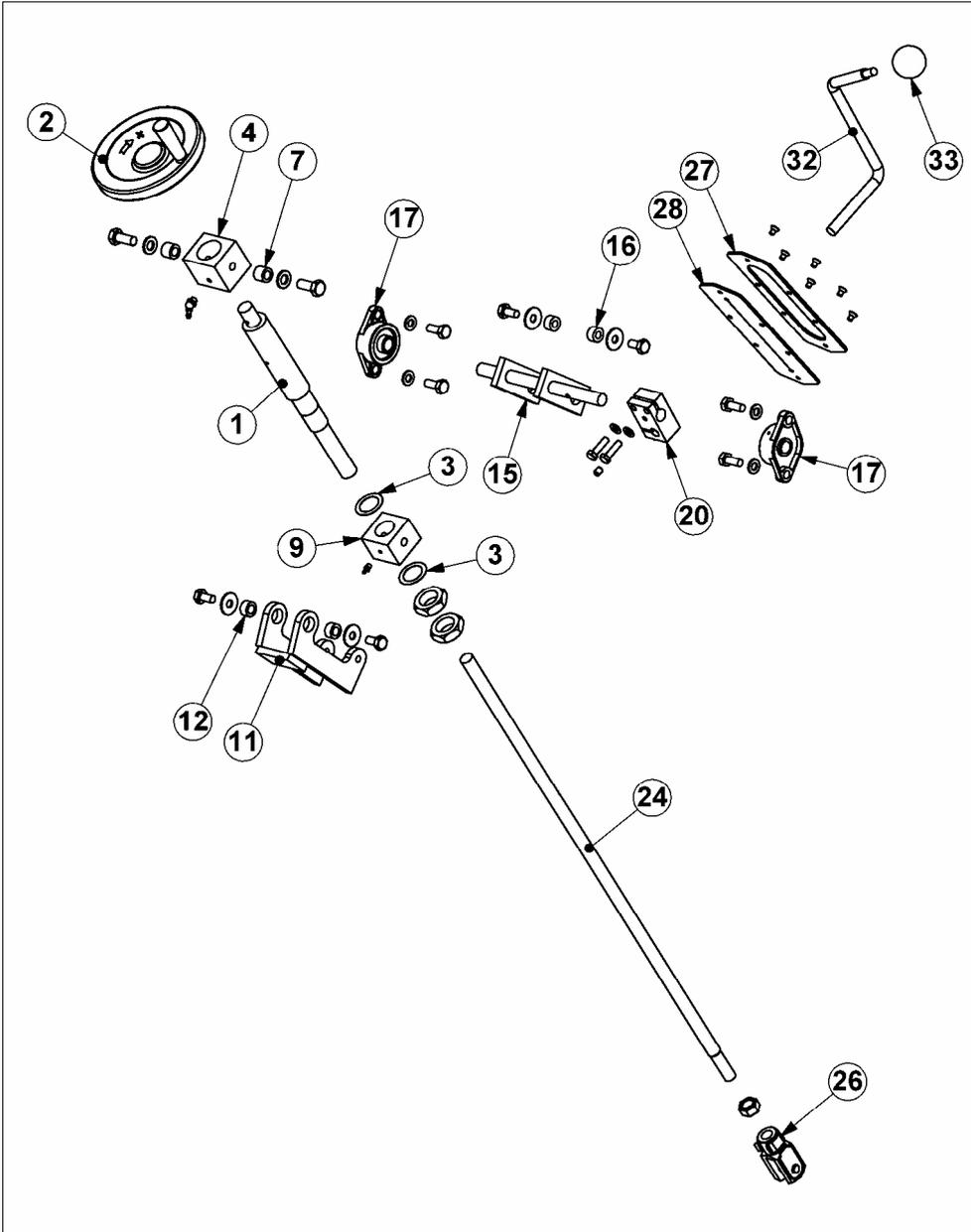


**Spare Parts**

<b>ITEM</b>	<b>QTY.</b>	<b>PART NUMBER</b>	<b>Description</b>
1	1	E04001	Pump motor
2	1	E04050	Coupling part 1
3	1	E04052	Coupling insert
4	1	E04051	Coupling part 2
5	1	E03378	Fan
6	2	E03996_8	1/8 x 1/2 Woodruff key
7	1	E03996_1	Hydraulic gearbox
8	1	E04008	Adapter
9	1		Nut 3/8-16 UNC
10	1	E03379	Lever
11	1	E04004	Cover
12	1	E03387	T-grip
13	1	E03984	Lever
14	1	E03366	Lock-in plate
15	1	E03385	Threated end
16	1	E04002	Bracket hydropump
17	1	E03985	Lever plate
18	1	E03388	Clamping piece
19	1	E03983	Rod

Spare Parts

Lifting device

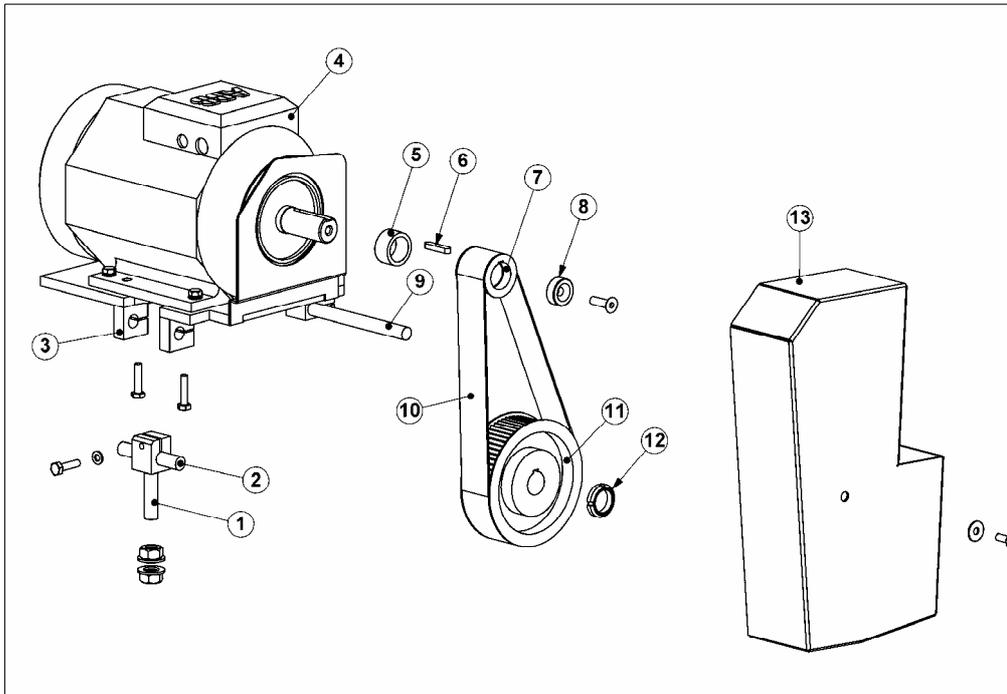


**Spare Parts**

ITEM	QTY.	PART NUMBER	Description
1	1	E03349	Spindle sleeve
2	1	E03353	Handwheel
3	2	E03352	Shim 40x28x0.5
4	1	E03350	Upper bearing
7	2	E03326	Bush
9	1	E03351	Lower bearing
11	1	E03356	Knee lever
12	2	E03363	Bushing
15	1	E03358	Knee lever axle
16	2	E03362	Bushing
17	2	E03359	Bearing
20	1	E03360	Clamping piece
24	1	E03355	Spindle
26	1	IR-FJ-04 M16x16x25 Fork Joint	
27	1	E03368	Gasket cover plate
28	1	E03367	Gasket
32	1	E03365_1	Lever
33	1	E03365_2	Knob lever

Spare Parts

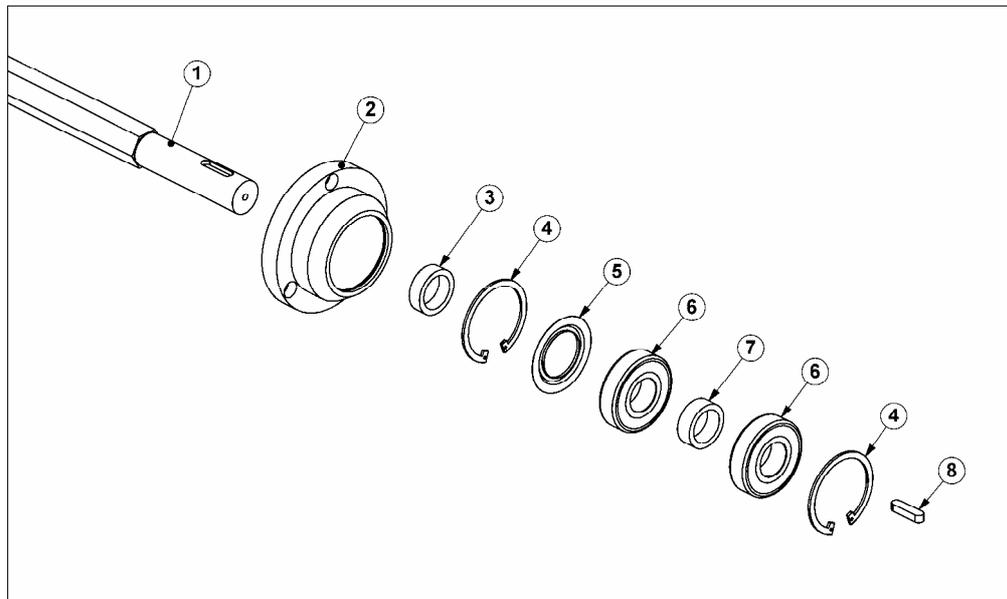
Drive



ITEM	QTY.	PART NUMBER	Description
1	1	E03392	Eye bolt
2	1	E03393	Bolt
3	1	E03977	Motor base plate
4	1	E04058	Motor 11 kW
5	1	E04014	Distance bush
6	1		Parallel key 10x8x50
7	1	E03404	Pulley
8	1	E04013	Fixation bush
9	1	E03978	Shaft motor base plate
10	1	E04009	Belt
11	1	E03406	Pulley
12	1		M35x1.5 slotted nut
13	1	E03998	Belt guard

**Spare Parts**

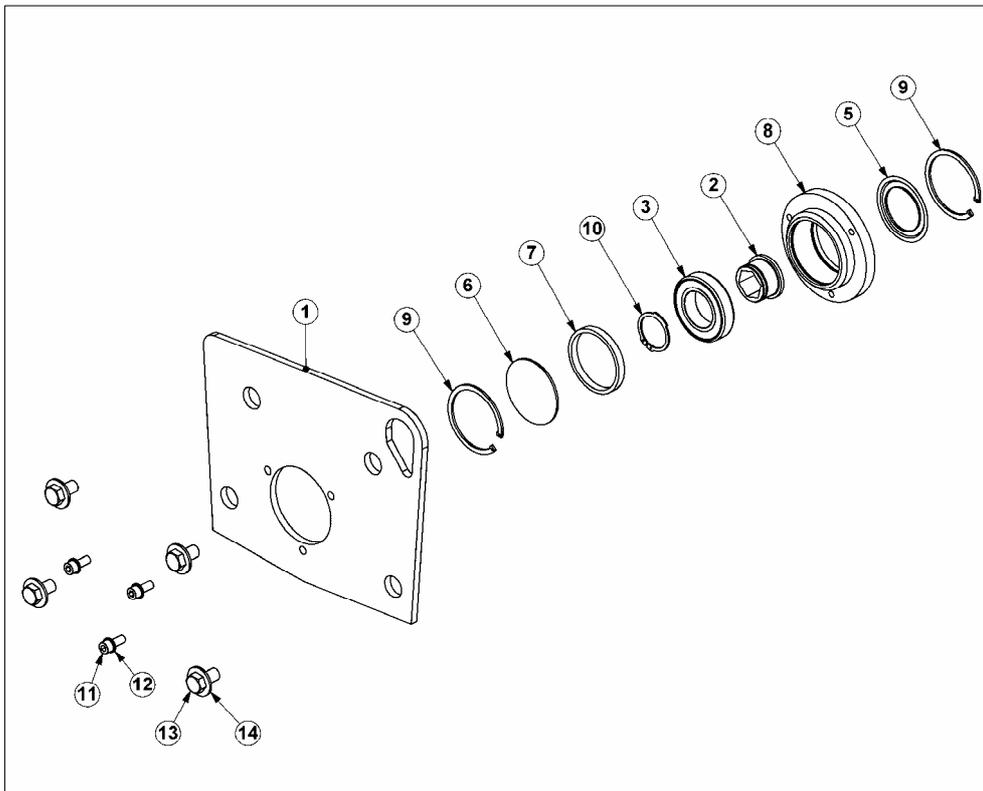
**Bearing unit complete E03952**



ITEM	QTY.	PART NUMBER	Description
1	1	E04041	Hexagon drive shaft
2	1	E03313	Bearing house left
3	1	E04042	Distance ring
4	2		Circlip Ø80
5	1	E03312	Protection ring
6	2	E03991	Bearing
7	1	E03316	Distance bush
8	1		Parallel key 10x8x50
1-8	1	E03952	Bearing unit complete

Spare Parts

Side plate & bearing unit

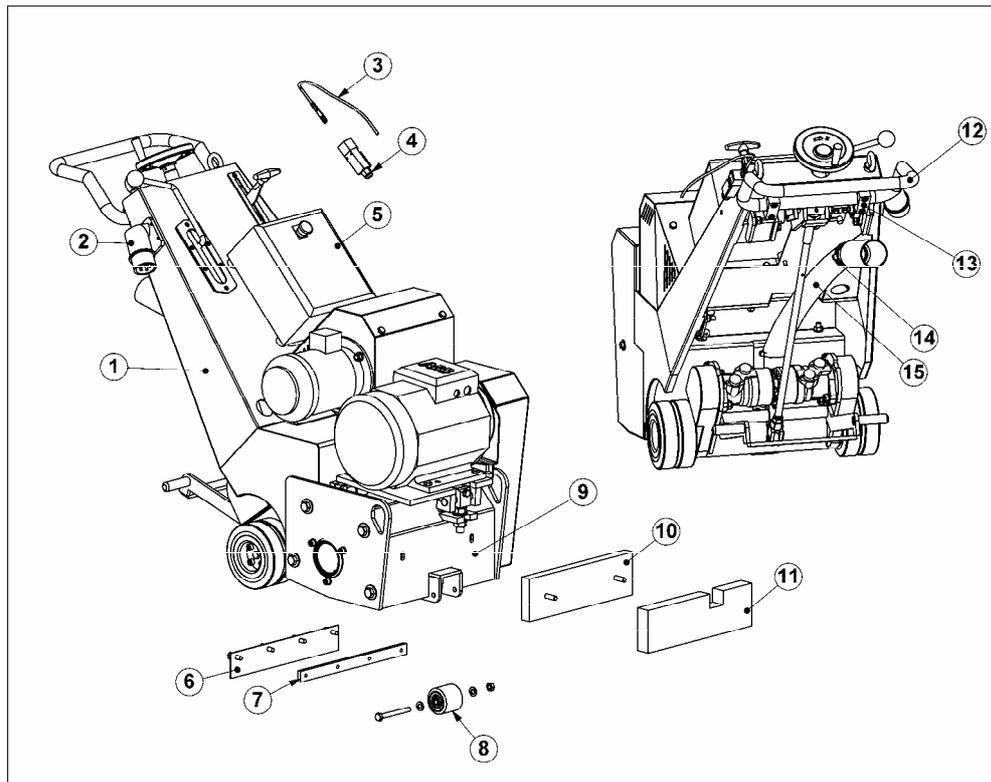


ITEM	QTY.	PART NUMBER	Description
1	1	E03932	Side plate only
2	1	E03309	Hexagon driving support
3	1	E03992	Bearing
5	1	E03310	Protection ring
6	1	E03307	Cover disk
7	1	E03308	Distance ring
8	1	E03305	Bearing housing right
9	2		Circlip Ø90
10	1		Circlip Ø50
11	3		M10x25 Hexagon Socket Head Cap
12	3		M10-Washer
13	4		M16x30 Bolt
14	4		M16-Washer
2-10	1	E03953	Bearing unit complete



**Spare Parts**

**General**



ITEM	QTY.	PART NUMBER	Description
1	1	E03974	Main body
2	1	DG17	Socket box
3	1	BG11758	Cord for deadman switch
5	1	E03997	Electrical panel
6	1	E03989	Rubber gasket
7	1	E03321	Clamping bar
8	1	E03317	Front wheel
9	1	E03931	Frame
10	1	E03412	Weight 1
11	1	E03413	Weight 2
12	1	E03382	Handle
13	2	E03381	Clamping piece
14	2	ST-73300	Hose clamp
15	0.7M	E00561	Hose

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**10.2 Assembly plans**

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Only assemble tools and spacers so you while the tools could freely move (Axial-Play min 1-2mm).  
Every shaft needs to have the same quantity of tools and spacers being fitted in order to prevent unbalances.



The following assembly layouts show the minimum components. Drums can be assembled with more tools, depending on the surface that needs to be treated.

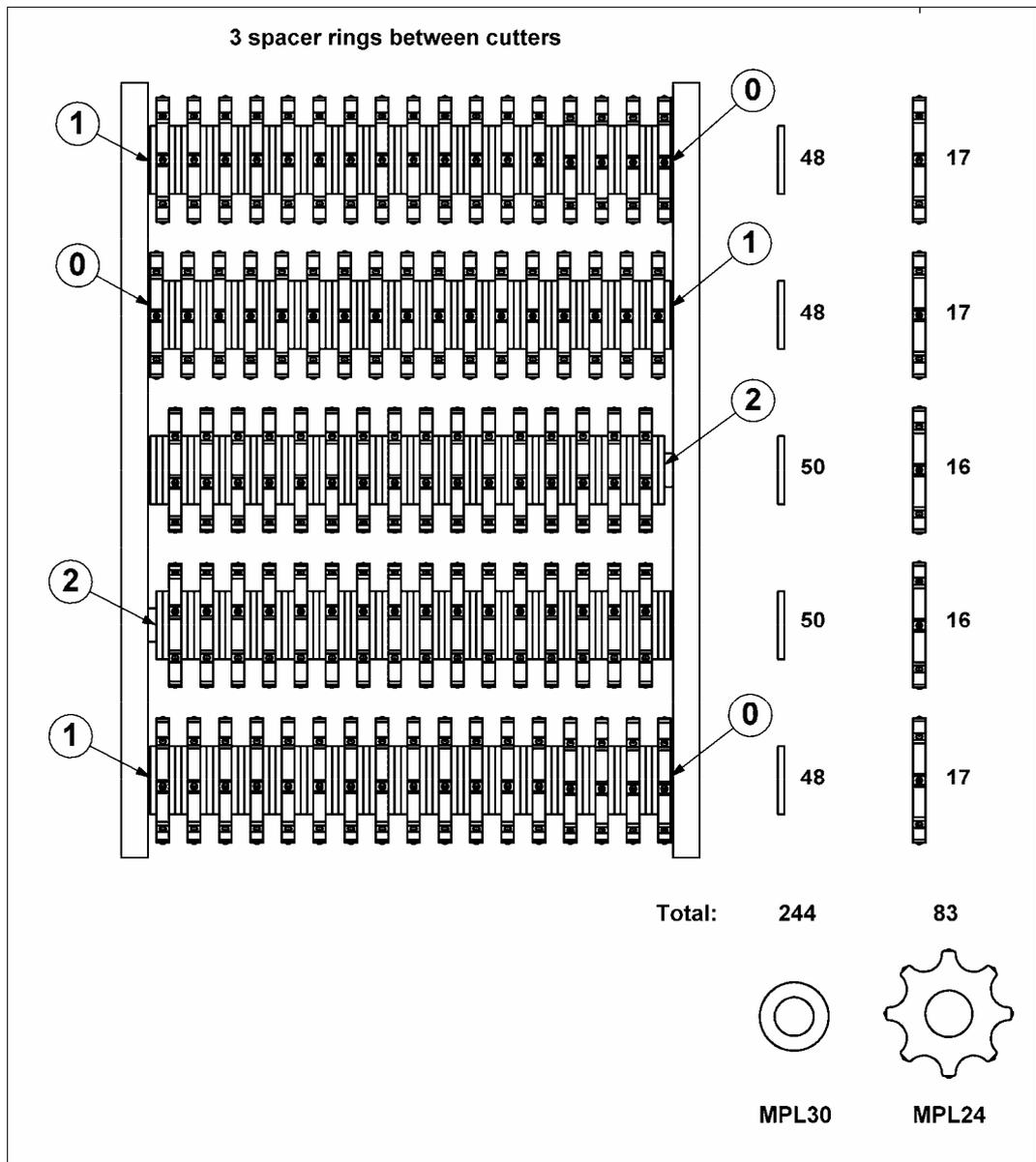
Please follow the above mentioned information.

**Spare Parts**

**10.2 Assembly plans**

**Assembly plan MPD335-5L 24S**

- 1x MPD335-5/1
- 83x MPL 24
- 244x MPL 30



**Assembly plan MPD335-620L60S**

- 1x MPD335-6/1
- 48x MPL 60-1
- 252x MPL 63

