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English / Englisch

Operating Instructions

Translation of original operating instructions
for the drum sanding machine

ELF

Lägler®
www.laegler.com

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CONTENTS

CONTENTS

Safety notes used in this operating instructions and their meaning:

WARNING!	**Death, severe physical injury** or **significant property damage** can occur if the corresponding cautionary measures are not taken!
CAUTION!	**Moderate to light physical injury** or **property damage** can occur if the corresponding cautionary measures are not taken!
ATTENTION!	An **undesired event** can occur if the corresponding instructions are not followed!

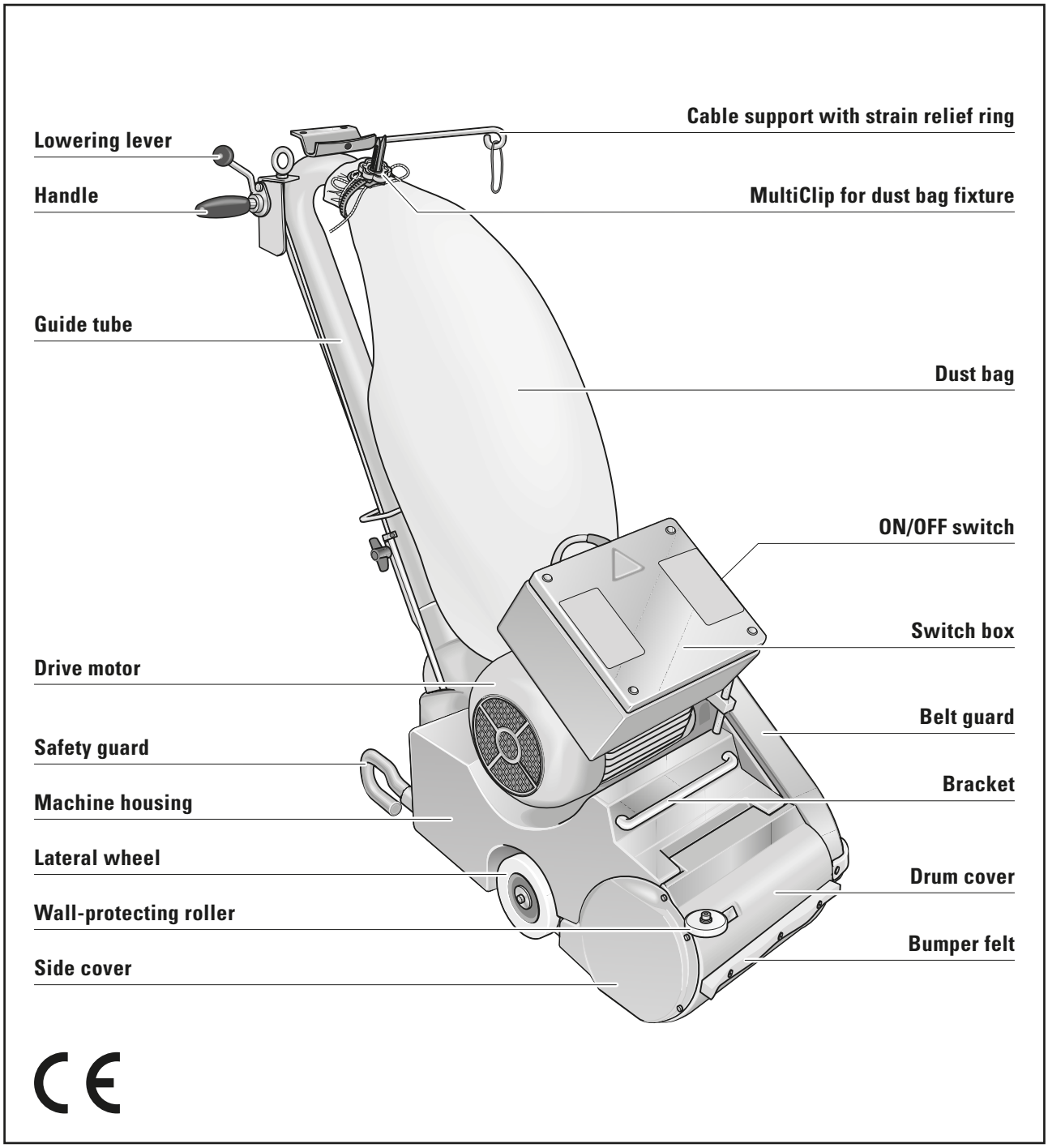


Fig. 1 Main features of the drum sanding machine ELF.

Introduction

1.1 FEATURES OF THE MACHINE

Figure 1 shows the most important components which make up the ELF. We recommend that you take some time to become familiar with the machine.

1.2 DESCRIPTION OF THE MACHINE

The ELF drum sanding machine is available in two different working widths (200 mm and 300 mm). The ELF works with a conventional sanding drum with paper tensioning.
The ELF 200 and the ELF 300 can alternatively be equipped with a centrifugal sanding drum.

The work zone is covered by the machine housing and foldable drum cover. On the machine housing, the electric motor is fixed in a motor bearing bracket. The plug for connection to the mains is located at the switch box of the motor. The motor switch with the switch positions START / WORKING and TEST is located at the switch box. On the left under the belt guard is the belt drive unit. The machine is moved by means of a steering wheel at the back and two lateral wheels. Two handles are attached to the guide tube, where the drum lowering lever is also located and the cables and dust bag are attached.

You have purchased a high-quality product from LÄGLER®. We wish you a great deal of success with your ELF. All LÄGLER® products are subjected to a thorough inspection before leaving the factory.

Read these operating instructions completely before working with the ELF for the first time. These operating instructions include important information on occupational safety and will provide you with answers to many questions so that you can work with the machine safely and without any problems. If you cannot find a specific subject in these operating instructions, please read the LÄGLER® application technique manual "Sanding of wooden floors" (www.laegler.com) or contact our service department, your retailer or your importer.

1.3 INTENDED USE OF THE MACHINE

The ELF drum sanding machine is suitable for dry sanding wooden and cork floors in dry environment.

Any application other than that described here is inadmissible without the consent of the manufacturer!

WARNING!

RISK OF DEATH from electrical shock:

The machine may never be used for wet processing operations of any kind!

1.4 SAFETY DEVICES

The following parts of the machine are safety devices and must accordingly be kept in perfect working order:

Drum cover	=	Dust shield, protection against abrasives and rotating parts
Side cover	=	Dust shield, protection against abrasives and rotating parts
Machine housing	=	Protection against abrasives and rotating parts
Belt guard	=	Protection against V-belts and rotating parts
Switch box	=	Protection against live parts

1.5 MACHINE CONFIGURATION

1.5.1 BASIC EQUIPMENT

- 1 Machine ready for operation
- 1 Operating instructions
- 1 Dust bag
- 1 MultiClip for dust bag fixture
- 1 Cable support
- 1 O-ring as a strain relief device
- 1 Extension cable, length 10 m (394”):
  - for single-phase AC motor 3 x 2.5 mm² (3 x 0.0039 sq.in.)
  - for three-phase AC motor 5 x 1.5 mm² (5 x 0.0023 sq.in.)
- 1 Tool bag
- 1 Closed mouth wrench, size 13 mm and size 10 mm
- 1 Open mouth wrench, size 17 mm
- 1 Hexagonal socket wrench, size 4 mm
- 1 Hexagonal socket wrench, size 5 mm
- 1 Hexagonal socket wrench, size 6 mm
- 1 Setting fixture
- 1 Box wrench
- 1 Respiratory protection mask, filter class P3

For the ELF with sanding drum, the basic equipment still includes additionally one paper template and two hexagonal socket wrenches with wrench size 10 mm.

1.5.2 OPTIONAL EQUIPMENT

- TransCart
- Safety belt
- Foldable earmuff
- Safety switch for fault current PRCD-S (for German mains supply)

NOTE:

You will find the corresponding part numbers for the optional equipment and wearing parts in *Section 11, Spare parts ELF*.

1.5.3 WEARING PARTS AND SAFETY-RELATED PARTS

Check the condition of the wearing parts and the safety-related parts mentioned below at regular intervals in order to be able to work safely and optimally at all times.

Replace the following parts in case of wear and/or damage:

- Extension cable
- Motor cable
- ON/OFF switch
- O-ring used as a strain relief device
- Dust bag
- MultiClip for dust bag fixture
- Side cover
- Drum cover
- V-belts
- V-belt pulleys
- Belt tensioner
- Sanding drum
  (in case of daily use, exchange every 1 - 2 years)
- Guide roller at the machine housing
- Rear wheel
- Lateral wheels

Hazard warnings and safety instructions

WARNING!

RISK OF DEATH, RISK OF INJURY, RISK OF FIRE:

- **Be certain to read the hazard warnings and safety instructions before using the machine!**
- **Instruct your co-workers and colleagues accordingly! Otherwise these persons could be exposed to danger or injured!**
- **Keep these hazard warnings and safety instructions in a safe place!**
- **Observe the applicable regulations and legal requirements in your country!**

2.1 HAZARD WARNINGS

WARNING!

RISK OF DEATH from suffocation and RISK OF INJURY:

- **Never** wrap the power cable around your neck or other parts of the body!

RISK OF DEATH from electrical shock:

- The machine may **never** be used for wet processing operations of any kind!
- Do not expose the machine to rain! Do not use the machine in moist or wet environments!
- **Never** connect the machine to hazardous electrical power sources such as electrical installations that are too weak, not fuse protected or without electrical grounding! Only use safety sockets!
- If the electrical installation is improper, there will be a **risk of death** if the machine is connected **directly** to the mains socket with the extension cable!
  To protect yourself and the machine against faults in the mains supply use a safety switch (for German mains supply part number in *Section 11, Spare parts ELF*)!
  Observe the applicable regulations and legal requirements in your country!
- All extensive maintenance work, especially on the electrical equipment, **must** be conducted by a qualified expert for safety reasons!
- The machine **must** be switched off and the power plug **must** be removed from the socket during all maintenance work and all work on the electrical equipment!
- Avoid body contact with grounded parts, e.g. pipes, radiators, ovens, refrigerators!
- The quality of the motor cable and the power cables **must** match the quality of the original LÄGLER® cables!

WARNING!

RISK OF DEATH from electrical shock:

- The motor cable and the power cables must be protected from mechanical and electrical damages in the workplace!
- Do not carry or pull by the machine by the cable! Do not pull on the cable to remove the plug from the socket! Protect the cables against heat, oil and sharp edges!

RISK OF DEATH and RISK OF PROPERTY DAMAGE from unsecured load:

- When transported in a car or the like, the machines and all parts must be secured against sliding!

RISK OF EXPLOSION due to sparks while sanding or a high dust concentration in the air:

- Do not use the machine near
  - sources of fires,
  - flammable liquids or gases,
  - potentially explosive areas!
- Do not smoke in a dusty environment, e.g. while sanding, emptying the dust bag or cleaning the machine!

RISK OF FIRE from sparks while sanding or from spontaneous combustion:

- Prior to sanding a nailed or screwed floor all nails or screws must be countersunk deeply enough so that they cannot be sanded:
  - Countersink the nails for example with a hammer and a punch!
  - Tighten the screws!
- There is a high risk of fire when sanding woods with a large amount of resin, oiled or waxed floors or metal! Therefore, the machine must **always** be cleaned carefully **directly** after sanding! **Be certain** to note the warning notices of the manufacturers of paint, oil and wax!
- Cloths, pads, et cetera which have been immersed in oil or wax can spontaneously combust! **Be certain** to note the warning notices of the manufacturers of paint, oil and wax!

WARNING!

RISK OF FIRE from sparks while sanding or from spontaneous combustion:

- The dust bag must **always** be removed from the machine **directly** after sanding and emptied into a **non-combustible** container **outdoors**! Cover this container with a **non-combustible** cover and **be certain** to store it and the dust bag **outdoors** in **non-combustible** environment (➡ *Section 5.5, Emptying the dust bag*)!
- Always transport and store used dust bags in **closed** and **non-combustible** containers!
- Always transport and store the machine **without** dust bag!

RISK OF FIRE from the overheating of the cables:

- Only the following motor cables and power cables may be used:
  - Machines with motor for mains voltage **220 V** or **230 V**: Cables with **three** wires! Each wire must have a cross-section of **at least** 2.5 mm² (0.0039 sq.in.)!
  - Machines with motor for mains voltage **400 V**: Cables with **five** wires! Each wire must have a cross-section of **at least** 1.5 mm² (0.0023 sq.in.)!
- The **maximum** cable length in order to connect the machine to the mains supply must not exceed 20 m (790")!

HEALTH RISK caused by dust:

- Make sure that the dust bag is properly fastened to the machine!
- Do **not** use damaged, washed or repaired dust bags!
- Do not work with an overfilled dust bag (➡ *Section 5.5, Emptying the dust bag*)!
- Clean the machine regularly! Dust and deposits in the intake duct, in the fan housing, on the fan insert, in the machine housing and in the guide tube can reduce the suction performance and thus increase excessively the dust load at the workplace!

WARNING!

HEALTH RISK caused by dust:

- If the machine is operated **correctly**, the mandatory dust emission values will not be exceeded! Empty the dust bag **outdoors**! At the same time a respiratory protective mask (at least filter class P2) **must** be worn!
- Always wear a respiratory protective mask (at least filter class P2) when executing works which might create dust, e.g. emptying of the dust bag or cleaning of the machine!

CAUTION!

RISK OF INJURY and RISK OF PROPERTY DAMAGE from rotating tools and parts of the machine:

- For all operating conditions of the machine only **one** operator is required! As a consequence, for safety reasons **only the machine operator** must be in the working area while operating the machine!
- During operation of the machine, **nobody** but the machine operator may touch the cables!
- Before switching on the machine, make sure that all tools and adjustment tools have been removed from the machine!
- The machine may **only be switched on** when it is standing on the lateral wheels **and** the rear wheel **and** the sanding drum is lifted from the ground!
- **Always** close the drum cover **before switching on** the machine! The drum cover **must always** be closed when the machine is switched on!
- **Never** leave the operational machine unattended!
- Do not reach into rotating tools or parts of the machine!
- Do not wear any long articles of clothing or jewelry! These could be caught by moving parts!

CAUTION!

RISK OF INJURY and RISK OF PROPERTY DAMAGE from unintentional starting of the machine:

- The power plug **must always** be removed from the socket when the machine is switched off!
- Make sure that ON/OFF switch is **not** set to ON when connecting the machine to the mains supply!

RISK OF INJURY and RISK OF PROPERTY DAMAGE from the rolling away, tipping or falling of the machine:

- The machine must be secured against rolling away, tipping or falling when not in use!
- **Always** ensure that the machine is standing securely!

RISK OF INJURY and RISK OF PROPERTY DAMAGE from unsuitable parts:

- Only use tools, accessories and spare parts from LÄGLER® for the ELF (➡ *Section 11, Spare parts ELF*)!
  Warranty claims for foreign parts or damage caused thereby cannot be accepted!

HEALTH RISK caused by noise:

- Always use suitable hearing protection when conducting work that produces noise! Observe the applicable regulations and legal requirements in your country!

RISK OF PROPERTY DAMAGE:

- Clean the machine regularly! Dust and deposits on the belt pulleys and V-belts lead to vibrations which have a negative effect on the sanding result!
- Never use any cleaning products which contain solvents!
- Do not store the unused machine on the sanding drum! Otherwise the abrasive can cause scratches on the ground or the sanding drum can be damaged!
- Never conduct a maintenance or a replacement of wearing parts on the newly sanded wooden floor! Thus, you will avoid scratches or other damage to the floor!
- Improper transport will result in damage to the machine!

2.2 GENERAL SAFETY INSTRUCTIONS

- **Check the machines for damage!**

  Check regularly and after a longer non-use of the machine

  - the proper functioning of safety devices and moving parts,
  - the parts including extension cables and motor cables for damage and wear.

  Damaged protective devices and damaged or worn parts must be properly repaired or replaced by an authorized service shop insofar as nothing to the contrary is indicated in the operating instructions (➡ *Section 11, Spare parts ELF*).

  Damaged electrical components must be replaced with Original spare parts from LÄGLER® by a qualified electrician (➡ *Section 11, Spare parts ELF*).

  Do not use the machine if it cannot be switched on and/or switched off by using its switch.

- **Maintain your machines with care!**

  - Always keep the machines clean so that you can work better and more safely.
  - Follow the maintenance guidelines and the instructions for replacing tools.
  - Keep the handles dry and free of oil and grease.

- **Provide good illumination in the workplace!**

  Well lit construction sites reduce the risk of injury and allow you to better evaluate the quality of your work.

- **Keep your work area tidy!**

  Untidy work areas create a risk of accidents.

- **Use the proper machines!**

  Do not use low-performance machines or additional devices for heavy jobs. Do not use the machines for purposes and work for which they are not intended.

- **Do not overload the machines!**

  They work better and more safely in the power range noted.

- **Do not bend too far over the machines!**

  Avoid unnatural postures. Make sure that you stay in a stable position and keep your balance at all times.

- **Be attentive!**

  Pay attention to your work. Work carefully and do not use the machines if you are not concentrating.

- **Store your machines safely!**

  Store your unused machines in a dry, closed location out of the reach of children!

Technical data

3.1 DATA ON TYPE PLATE

ATTENTION!

In order to receive the correct spare parts from us, please specify in inquiries and spare part orders always the serial numbers of your machines!

3.1.1 MACHINE TYPE PLATE

In order to be able to read the machine type plate of the ELF, proceed as follows:

1 The machine must be **switched off** (➡ *Section 4.4, Switching off the machine*)!

2 **Pull the power plug out of the socket!**

3 Open the belt guard (fig. 2).

4 The machine type plate is located on the machine housing below the belt tensioner (fig. 3).

The following technical data are specified on the machine type plate (fig. 4):

- **1** Manufacturer
- **2** **Serial number of machine (Mach.-No.)**
- **3** Year of manufacture (Year)
- **4** Machine name (Type)
- **5** Weight of machine in kg (Weight)
- **6** Speed of sanding drum in 1/min (Rpm on drum)
- **7** Country of manufacture

5 **Close the belt guard (fig. 5)!**

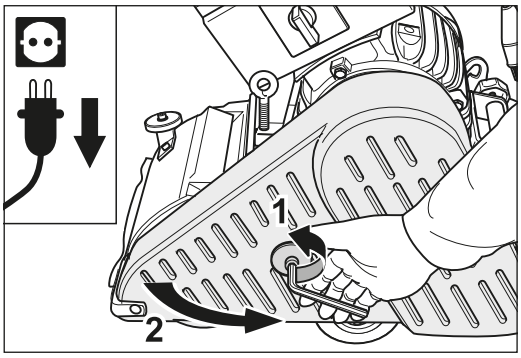


Fig. 2 **Pull the power plug out of the socket** and open the belt guard.

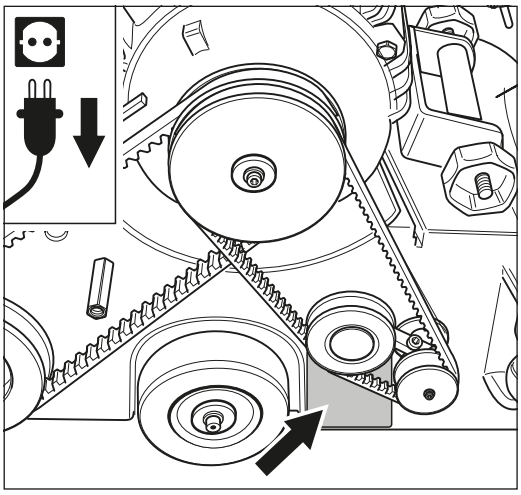


Fig. 3 Machine type plate on machine housing.

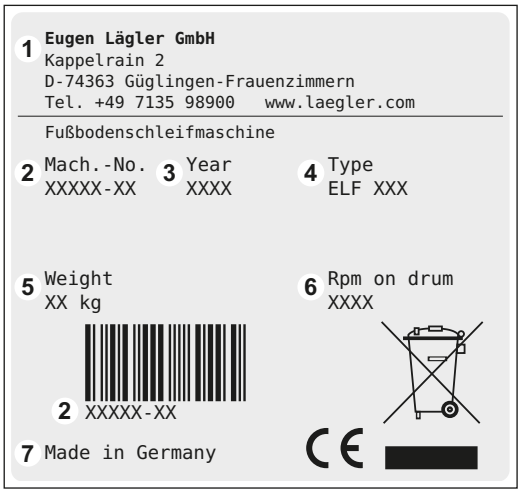


Fig. 4 Data on machine type plate.

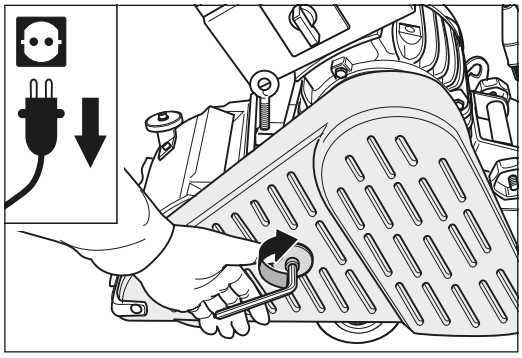


Fig. 5 Close the belt guard.

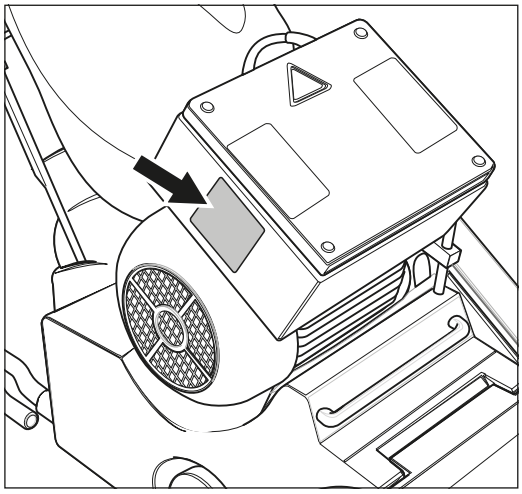


Fig. 6 Motor type plate on switch box.

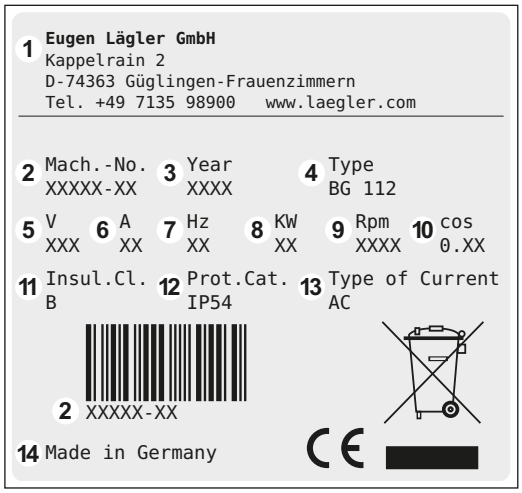


Fig. 7 Data on motor type plate.

3.1.2 MOTOR TYPE PLATE

The motor type plate of the ELF is located on the switch box of motor (fig. 6).

The following technical data are specified on the motor type plate (fig. 7):

1 Manufacturer
2 **Serial number of machine (Mach.-No.)**
3 Year of manufacture (Year)
4 Motor size (Type)
5 Required mains voltage in volt (V)
6 Current consumption in ampere (A)
7 Motor frequency in CPS (Hz)
8 Motor power in kilowatt (KW)
9 Motor speed in 1/min (Rpm)
10 Power factor cos phi (cos)
11 Insulation class (Insul. Cl.)
12 Protection category (Prot. Cat.)
13 Type of current
14 Country of manufacture

3.2 MACHINE DATA

Manufacturer	Eugen Lägler GmbH
Machine type	drum sanding machine
Machine name	ELF
Serial number	see type plate (fig. 3, fig. 6)
Year of manufacture	see type plate (fig. 3, fig. 6)

Motor type	single-phase AC motor		
Voltage	230 V	220 V 230 V	220 V (USA version)
Frequency	50 Hz (CPS)	60 Hz (CPS)	60 Hz (CPS)
Motor power	2.2 kW		2.9 kW
Necessary fuse protection of mains supply	at least 16 A	at least 20 A	at least 20 A
Starting capacitor	60 µF		130 µF
Running capacitor	40 µF		40 µF

Motor type	three-phase AC motor
Voltage	400 V
Frequency	50 Hz (CPS)
Output	4.0 kW
Necessary fuse protection of mains supply	at least 16 A

Insulation class	B
Protection class	IP 54
Safety devices	no-voltage release, temperature switch as overload protection in the motor

NOTE:

The motor data indicated here refers to machines used in Germany or USA. Exported machines may have other data that can be seen on the motor type plate.

NOTE on noise emission:

The values indicated are emission values and must not represent safe workplace values as well.
Although a correlation exists between emission levels and immission levels, it is not always possible to determine whether additional precautionary measures are required.
Factors that can have an effect on the immission level existing at the workplace include the duration of the effects, the characteristics of the work area and other sources of noise, e.g. the number of machines and processing operations in the vicinity. The permissible workplace values may also vary from country to country.
This information, however, is intended to enable the user to better estimate the dangers and risks.

Diameter of sanding drum - sanding drum for clamping abrasive paper - centrifugal sanding drum	 175 mm (approx. 6.9") 173.5 mm (approx. 6.8")
Width of sanding drum - ELF 200 - ELF 300	 200 mm (approx. 7.9") 300 mm (approx. 11.8")
Speed of sanding drum - machine with motor 50 Hz (CPS) - machine with motor 60 Hz (CPS)	 approx. 2400 1/min (rpm) approx. 2800 1/min (rpm)
Overall length of machine	1040 mm (approx. 40.9")
Overall width of machine - ELF 200 - ELF 300	 360 mm (approx. 14.2") 490 mm (approx. 19.3")
Overall height of machine	1020 mm (approx. 40.2")
Weight of machine housing - ELF 200 - ELF 300	 39 kg (approx. 86 lbs) 43 kg (approx. 95 lbs)
Weight of motor	34 kg (approx. 75 lbs)
Weight of guide tube, complete	4 kg (approx. 9 lbs)
Overall weight of machine - ELF 200 - ELF 300	 77 kg (approx. 170 lbs) 81 kg (approx. 179 lbs)

Workplace-related noise emission values	77 dB(A)
Measurement uncertainty constant of the noise emission values	4 dB(A)
Vibration total value a_{hv} (measured at the handle)	< 2.5 m/s²

Commissioning

This section describes the procedure for commissioning the ELF on site. In order to exclude the possibility of damage and malfunctions, it is essential to proceed in the sequence outlined below.

CAUTION!

RISK OF INJURY and RISK OF PROPERTY DAMAGE:

Before working with the machine for the first time, operating staff must be adequately instructed!

4.1 PREPARING THE MACHINE FOR OPERATION

1 Unpack the machine carefully. The bottom part of the supplied transport crate makes a useful container for storage or transportation of the machine (➡ *Section 6, Transport and storage*). Please ensure that the packaging materials are responsibly disposed of.

2 Press the lowering lever at the handle downwards (fig. 8, 1).

3 Insert the guide tube into the opening in the machine housing and at the same time insert the upper rod into the lower rod (fig. 8, 2).

4 Carefully tighten the wing screw at the lower rod (fig. 9) and the wing nut at the machine housing (fig. 10).

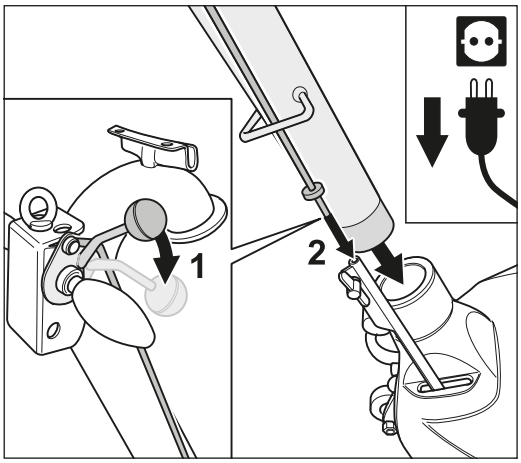


Fig. 8 When inserting the guide tube, make sure that the upper rod of the lowering mechanism feeds in correctly!

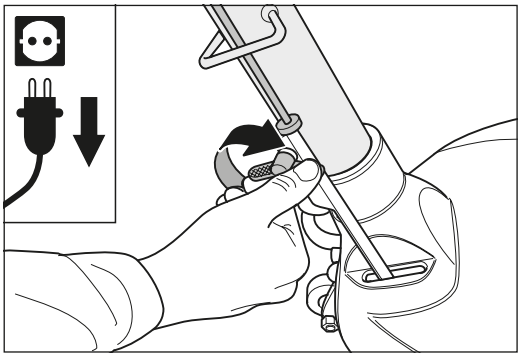


Fig. 9 After inserting the guide tube, carefully tighten the wing screw at the lower rod.

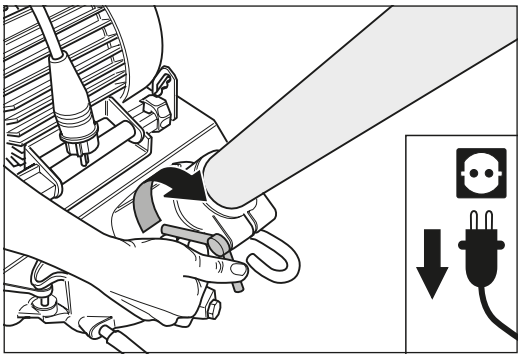


Fig. 10 After inserting the guide tube, carefully tighten the wing nut at the machine housing.

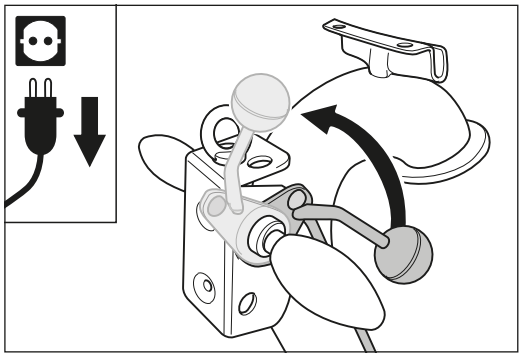


Fig. 11 Lift the sanding drum off the floor by turning the lowering lever at the handle upwards.

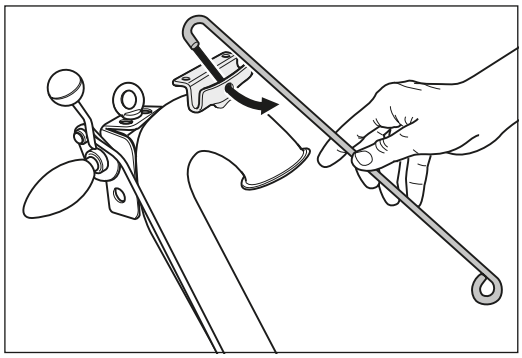


Fig. 12 Hook the cable support into the bracket at the guide tube.

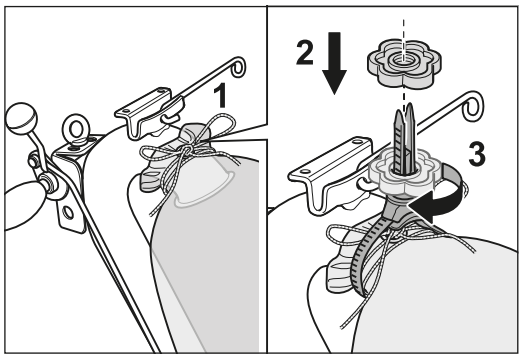


Fig. 13 Mount the dust bag using the cord (1) and the MultiClip (2 and 3) at the end of the guide tube.

5 Lift the sanding drum off the floor by turning the lowering lever at the handle upwards (fig. 11).

6 Hook the cable support into the bracket at the top of the guide tube (fig. 12).

7 Fasten the dust bag firmly using the cord and the MultiClip at the end of the guide tube (fig. 13). Ensuring when mounting that the opening of the guide tube is not closed.

8 Mount the abrasive (➞ *Section 5.2, Changing the abrasive*).

4.2 CONNECTING THE POWER CABLE

WARNING!

RISK OF DEATH from electrical shock:

- **Never connect the machine on hazardous electrical power sources such as electrical installations that are too weak, not fuse protected or without electrical grounding! Only use safety sockets!**
- **If the electrical installation is improper, there will be a risk of death if the machine is connected directly to the mains socket with the extension cable!**
  To protect yourself and the machine against faults in the mains supply use a safety switch PRCD (for German mains supply ➡ part number in *Section 11, Spare parts ELF*)!
- **Observe the applicable regulations and legal requirements in your country!**

RISK OF FIRE from the overheating of the cables:

- **Only the following motor cables and power cables may be used:**
  - **Machines with motor for mains voltage 220 V or 230 V: Cables with three wires! Each wire must have a cross-section of at least 2.5 mm² (0.0039 sq.in.)!**
  - **Machines with motor for mains voltage 400 V: Cables with five wires! Each wire must have a cross-section of at least 1.5 mm² (0.0023 sq.in.)!**
- **The maximum cable length in order to connect the machine to the mains supply must not exceed 20 m (790")!**

1 Lift the sanding drum off the floor by turning the lowering lever at the handle upwards (fig. 14).

2 Insert the plug of the motor cable in the coupler of the extension cable (fig. 15, 1).

3 Fasten the strain relief ring on the extension cable (fig. 15, 2).

4 Mount the strain relief ring on the cable support (fig. 16).

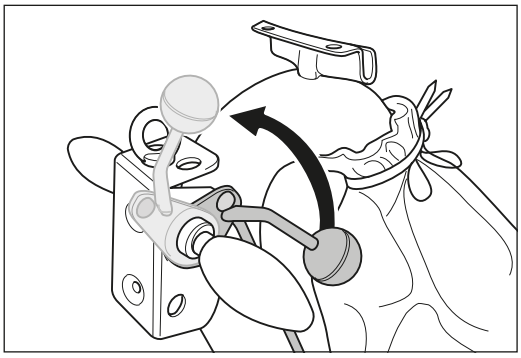


Fig. 14 Lift the sanding drum off the floor by turning the lowering lever at the handle upwards.

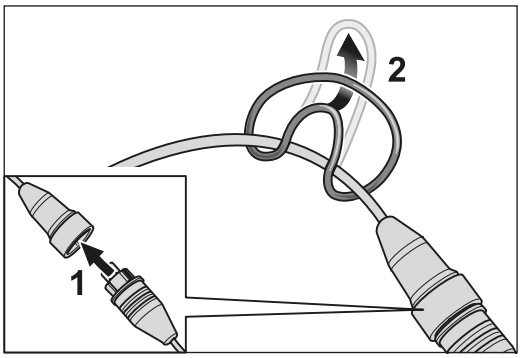


Fig. 15 Insert the plug of the motor cable in the coupler of the extension cable (1). Fasten the strain relief ring on the extension cable (2).

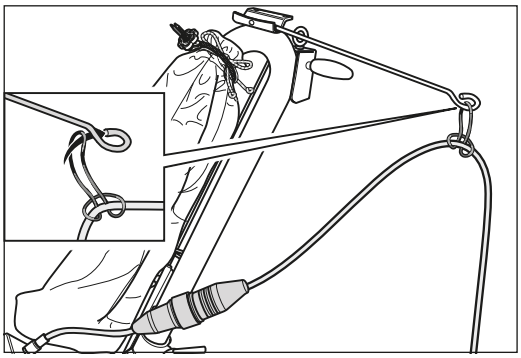


Fig. 16 Mount the strain relief ring on the cable support.

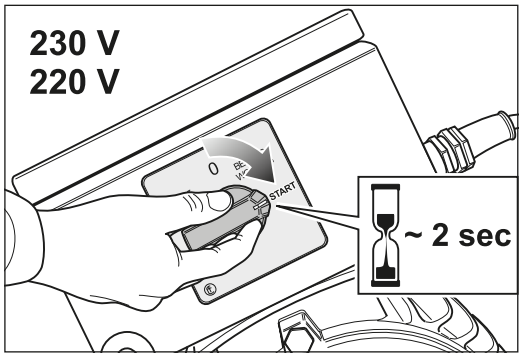


Fig. 17 To switch on the machine turn the switch button at the motor to position -START- and hold the switch button for around 2 seconds in this position.

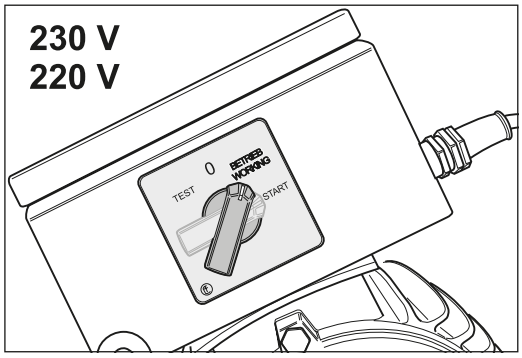


Fig. 18 Once the motor has reached its full speed, release the switch button. The switch button will then automatically move to position -BETRIEB (WORKING)-.

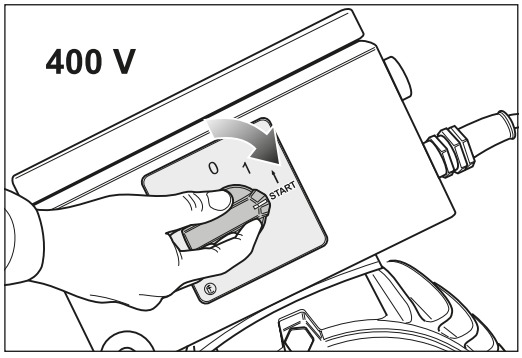


Fig. 19 To switch on the machine turn the switch button at the motor to position -START-.

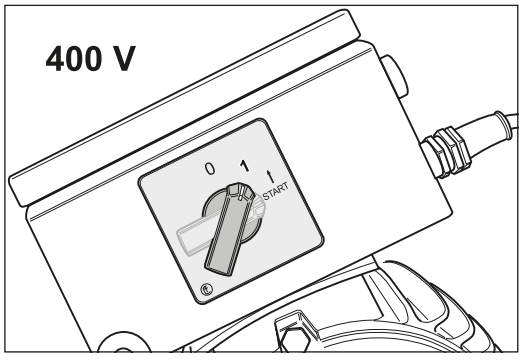


Fig. 20 Release the switch button. The button turns automatically in position -1-.

5 Insert the plug of the extension cable into the coupler of the personal safety switch. Then plug the plug of the personal protection switch into a sufficiently fused mains socket with protective contacts.
The machine can also be switched on if the plug of the extension cable is plugged directly into a sufficiently fused mains socket with earth contacts.
However, the regulations and legal requirements applicable in your country must always be observed!

4.3 SWITCHING ON THE MACHINE

CAUTION!

RISK OF INJURY and RISK OF PROPERTY DAMAGE from rotating parts of the machine:

- **Before switching on the machine, always ensure that the abrasive is tensioned and correctly positioned (➡ *Section 5.2, Changing the abrasive*)!**
- **Always lift the sanding drum off the floor before switch on the machine (fig. 14)!**
- **Never allow the machine to run unattended!**

4.3.1 MACHINES WITH SINGLE-PHASE AC MOTOR (MAINS VOLTAGE 230 V AND 220 V)

1 **Lift the sanding drum off the floor by turning the lowering lever at the handle upwards (fig. 14)!**

2 To switch on the machine turn the switch button at the motor to position -START- and hold the switch button for around 2 seconds in this position (fig. 17).

3 Once the motor has reached its full speed, release the switch button. The switch button will then automatically move to position -BETRIEB (WORKING)- (fig. 18).

ATTENTION!

Remaining for too long in the switch position -START- shortens the service life of the starting capacitor!

4.3.2 MACHINES WITH THREE-PHASE AC MOTOR (MAINS VOLTAGE 400 V)

1 **Lift the sanding drum off the floor by turning the lowering lever at the handle upwards (fig. 14)!**

2 To switch on the machine turn the switch button at the motor to position -START- (fig. 19) and release the switch button after the motor has reached its full speed. The switch button will then automatically move to position -1- (fig. 20).

If the motor do not start in the switch position -START- (fig. 21, 1) and the light on the switch box shines (fig. 21, 2), the rotation direction of the motor is wrong.
To change the rotation direction of the motor using the following procedure:

1 **Disconnect the motor cable from extension cable!**

2 Original LÄGLER® plug with **red** nut at the cable outlet (fig. 22, **A**):

- Put a screwdriver in the slit of the phase changing switch in the plug of the motor cable (fig. 23, 1).
- To unlock the phase changing switch press the screwdriver in the slit and at the same time turn the screwdriver at 180° (fig. 23, 2).

Original LÄGLER® plug with **yellow** nut at the cable outlet (fig. 22, **B**):

- Put a screwdriver in the slit of the phase changing switch in the plug of the motor cable (fig. 23, 1).
- To unlock the phase changing switch turn the screwdriver at 180° against a small resistance (fig. 23, 2).

ATTENTION!

The phase changing switch can only be turned in one direction! The corresponding direction can be different with different plugs!

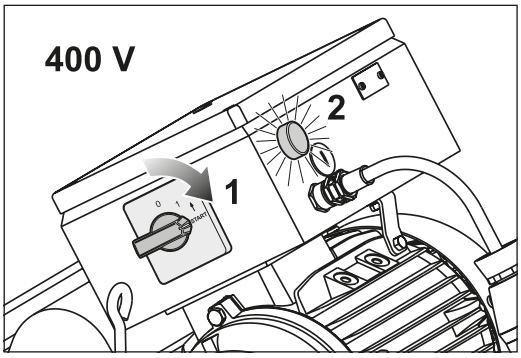


Fig. 21 The motor do not start in switch position -START- (1) and the light on the switch box shines (2).

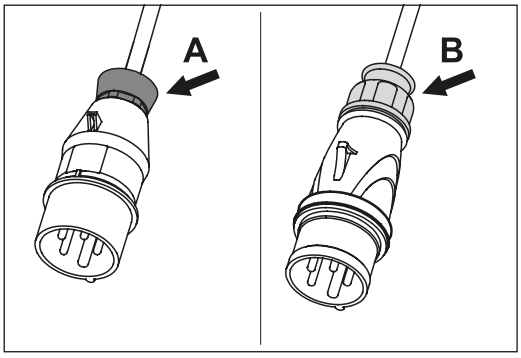


Fig. 22 Original LÄGLER® plug with **red** nut (**A**) or **yellow** nut (**B**).

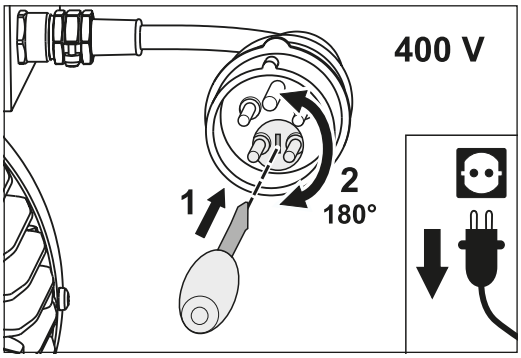


Fig. 23 Change the rotation direction of the motor by turning the phase changing switch at 180°.

4.3.3 GENERAL

If the motor should ever be difficult to start in extremely cold conditions proceed as follows:

1 Switch off the machine (➡ *Section 4.4, Switching off the machine*) and remove the V-belts (➡ *Section 7.8, Replacement and tensioning of V-belts*).

2 Switch on the machine **without V-belts** (➡ *Section 4.3, Switching on the machine*).

3 Once the motor is up to operating temperature, switch off the machine (➡ *Section 4.4, Switching off the machine*) and mount the V-belts (➡ *Section 7.8, Replacement and tensioning of V-belts*).

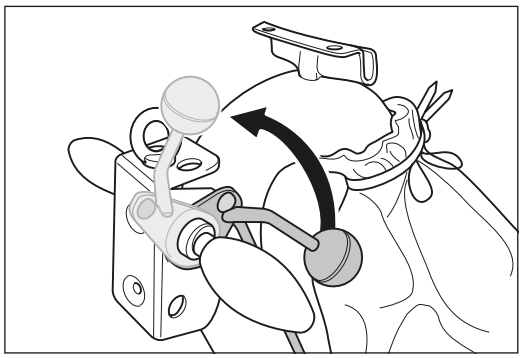


Fig. 24 Lift the sanding drum off the floor by turning the lowering lever at the handle upwards.

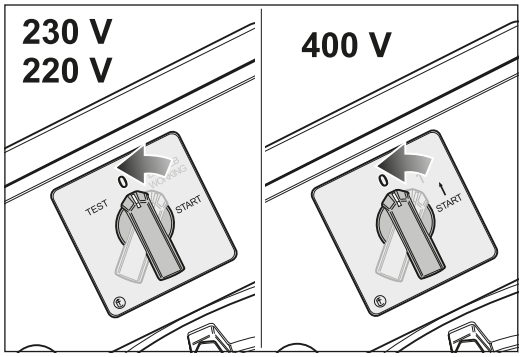


Fig. 25 To switch off the machine turn the switch button to position -0-.

4.4 SWITCHING OFF THE MACHINE

1 Before switch off the machine lift the sanding drum off the floor by turning the lowering lever at the handle upwards (fig. 24).

2 Turn the switch button to position -0- (fig. 25).

3 **Wait until the sanding drum comes to a standstill!**

CAUTION!

RISK OF INJURY and RISK OF PROPERTY DAMAGE:

- **Always remove the power plug from the socket after you have switched off the machine!**
- **Secure the machine against sliding! For example, place a flat piece of wood between the floor surface and machine housing.**

ATTENTION!

Do not store the unused machine on the sanding drum! Otherwise the abrasive can cause scratches on the ground or the sanding drum can be damaged!

Working with the ELF

5.1 APPLICATION TIPS

ATTENTION!

- **Always sand from left to right! This ensures that the left-hand lateral wheel always runs over the newly sanded surface, making the surface more even with each sanding step and preventing waviness!**
- **One sanding path consists of a forward and reverse sanding motion on the same path without displacement!**
- **We advise a sanding path displacement of 50%!**

WARNING!

RISK OF DEATH from electrical shock:

The machine may never be used for wet processing operations of any kind!

- Deep sanding marks due to the selection of a too coarse grit can be prevented by starting the first sanding operation with the finest grit possible.
- Carry out a test sanding operation using a 50 or 60 grit (a few test sanding paths). If this test is satisfactory and you envisage a good sanding result within a reasonable period, it is more efficient to start the sanding work with these finer grit.
- Prevent sanding marks made by previously used grit sizes by respecting the grit sequence and never skip more than one grit size.
- Vacuum the floor thoroughly always directly **before each** work step (every sanding step, gap filling or surface treatment).
- Clean the wheels of the machine before starting each work step.
- In the case of roll abrasives, care should be taken to ensure that the abrasive always has a tear-resistant paper backing ("E" weight paper).
- For centrifugal sanding drums, use only sanding sleeves with a tear-resistant cloth backing (no paper backing), a blunt (non-overlapping) sinusoidal closure bonded with foil. This prevents chatter marks on the floor and tearing of the sanding sleeve.

NOTE:

For more information free of charge, please contact: within Germany
- Telephone: 0800 / 52 34 537
- Fax: 0800 / 48 66 353

within the USA
- Telephone: 800-848-6635

or
- Telephone: 0049 - 7135 - 98 90 - 0
- Fax: 0049 - 7135 - 98 90 - 98
- E-mail: info@laegler.com
- Internet: www.laegler.com

You will also find important and interesting application tips in the LÄGLER® application technique manual "Sanding of wooden floors" (www.laegler.com)!

- After replacing the abrasive, start working in poorly lit areas of the room in order to remove the initial aggressiveness of the abrasive.

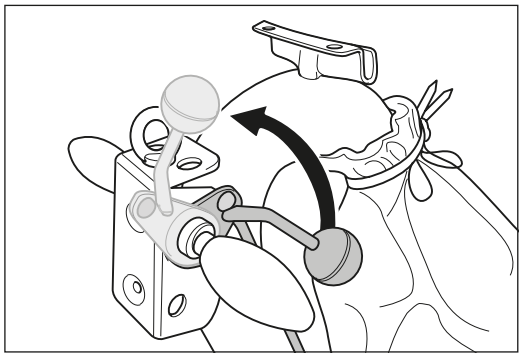


Fig. 26 Lift the sanding drum off the floor by turning the lowering lever at the handle upwards.

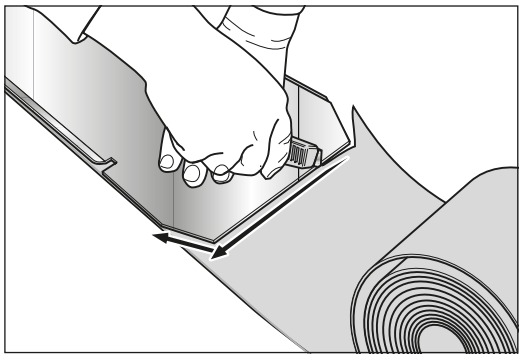


Fig. 27 Use a carpet knife to cut out the abrasive sheet around the template.

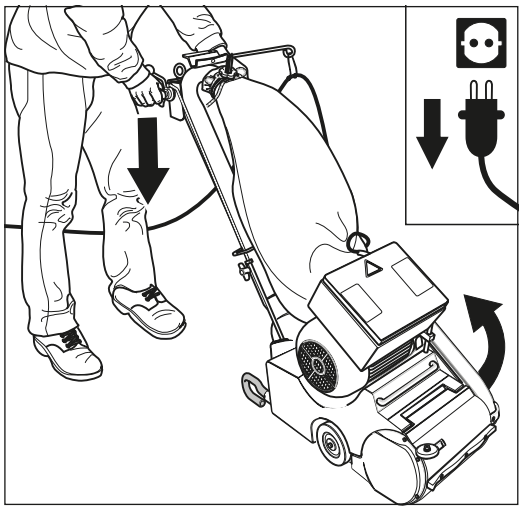


Fig. 28 **Pull the power plug out of the socket** and tilt the machine backwards over the safety guards.

5.2 CHANGING THE ABRASIVE

Depending on the type of sanding process you wish to perform, different abrasive grits can be selected.

5.2.1 SANDING DRUM FOR CLAMPING ABRASIVE PAPER

If the machine is equipped with a sanding drum for clamping abrasive paper, proceed as follows:

1 Lift the sanding drum off the floor by turning the lowering lever at the handle upwards (fig. 26).

2 **Switch off the machine and pull the power plug out of the socket!**

3 Place the paper template on the reverse of the unrolled abrasive sheet. Use a carpet knife to cut the abrasive sheet according to the template (fig. 27).

4 Tilt the machine backwards over the safety guards (fig. 28) and place it down carefully on the floor (fig. 29). **Ensure that the machine is standing securely!**

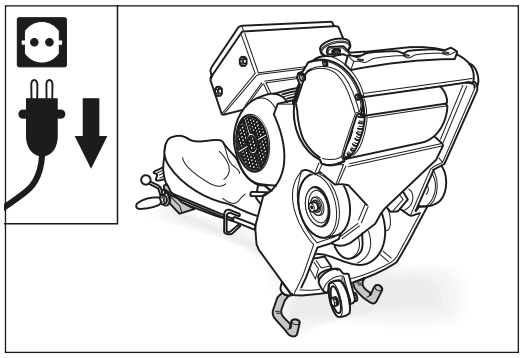


Fig. 29 Place the machine carefully on the floor. **Ensure that the machine is standing securely!**

5 Swing the drum cover upwards on the front of the machine housing (fig. 30).

6 Now turn the sanding drum until the slot for paper clamping is easily accessible.

7 Insert the correct hexagonal socket wrench (size 10 mm) in the clamping bolts at the side. Open the paper clamping fixture by pulling the hexagonal socket wrench upwards with your left hand and pushing the other hexagonal socket wrench downwards with your right hand (fig. 31).

8 Remove the worn abrasive sheet (fig. 32).

9 Place the new abrasive sheet evenly around the sanding drum and insert the ends into the paper clamping slot of the sanding drum (fig. 33).

10 Now clamp the abrasive sheet in place by pressing the hexagonal socket wrench downwards using your left hand and at the same time pulling the other hexagonal socket wrench upwards using your right hand (fig. 34). This turning movement pulls the abrasive sheet inwards and tightens it between the clamping bolts.

11 **Remove the hexagonal socket wrench!**

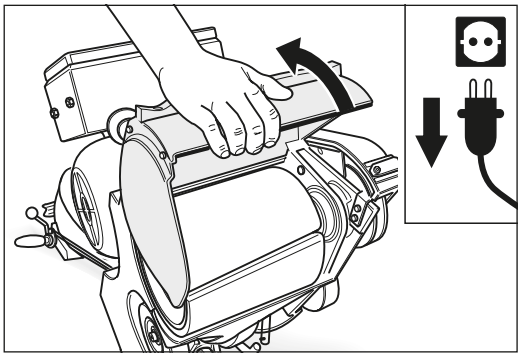


Fig. 30 **Pull the power plug out of the socket** and swing the drum cover upwards.

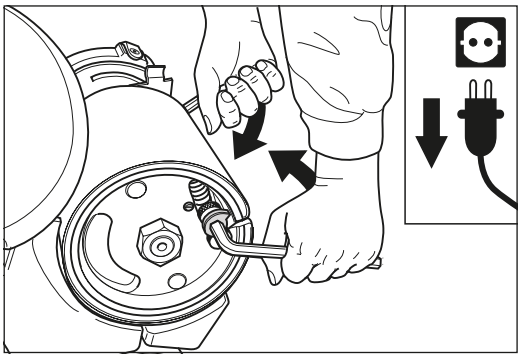


Fig. 31 Use the two hexagonal socket wrenches (size 10 mm) to open the paper clamping fixture.

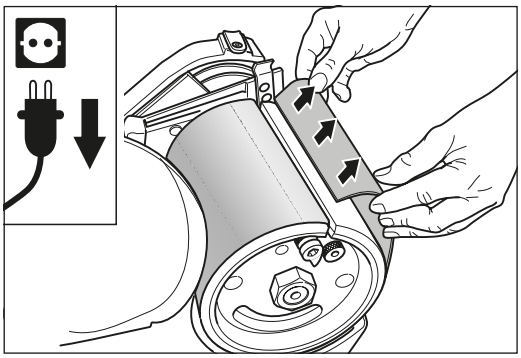


Fig. 32 Remove the worn abrasive sheet.

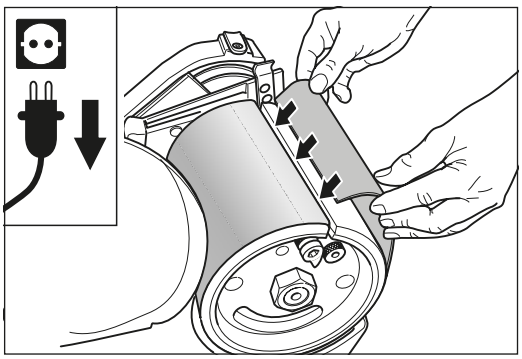


Fig. 33 Insert the new abrasive sheet carefully.

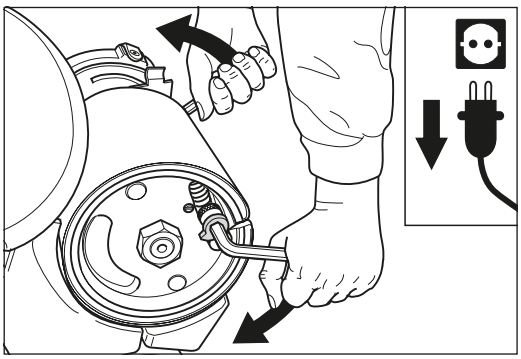


Fig. 34 Clamp the abrasive sheet using the two hexagonal socket wrenches (size 10 mm).

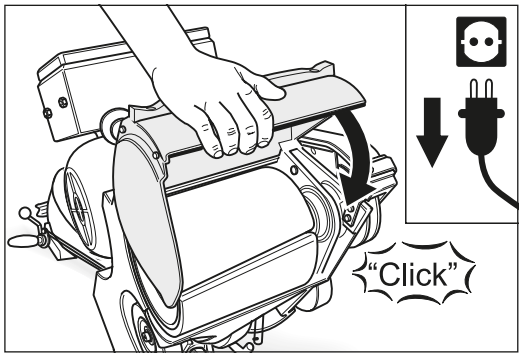


Fig. 35 Swing the drum cover back down to close it. **Make sure you feel it lock into place!**

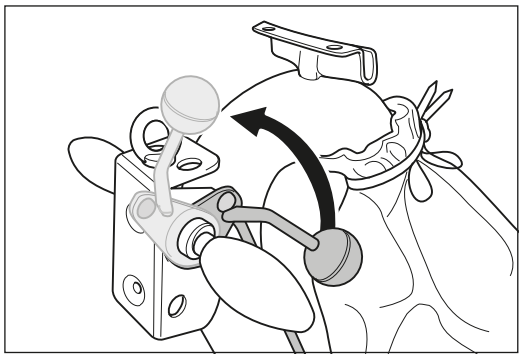


Fig. 36 Lift the sanding drum off the floor by turning the lowering lever at the handle upwards.

12 Close the housing opening by swinging the drum cover back downwards. **Make sure you feel the cover lock into place (fig. 35)!**

13 Tilt the machine carefully forwards so that it is standing safely with the two lateral wheels on the floor.

14 Connect the machine to the mains supply (➡ *Section 4.2, Connecting the power cable*).

CAUTION!

RISK OF INJURY and RISK OF PROPERTY DAMAGE from rotating parts of the machine:

- **Always tension the abrasive before switch on the machine!**
- **Always lift the sanding drum off the floor before switch on the machine (fig. 36)!**

15 It is now possible to execute the next sanding step with the machine.

NOTE:

To achieve a good sanding result, the abrasive has to be fitted evenly to the sanding drum and tightened. Do not clamp the paper more tightly than necessary, however, because it could tear otherwise.

5.2.2 CENTRIFUGAL SANDING DRUM

If the machine is fitted with a centrifugal sanding drum, proceed as follows:

1 Lift the sanding drum off the floor by turning the lowering lever at the handle upwards (fig. 36).

2 **Switch off the machine and pull the power plug out of the socket!**

3 Swing the drum cover upwards on the front of the machine housing (fig. 37).

4 Pull the worn sanding sleeve off the sanding drum (fig. 38).

5 Push the sanding sleeve as far as necessary over the sanding drum until the abrasive projects equally at both sides of the sanding drum (fig. 39).

6 Close the housing opening by swinging the drum cover back downwards. **Make sure you feel the cover lock into place (fig. 40)!**

7 Connect the machine to the mains supply (➡ *Section 4.2, Connecting the power cable*).

CAUTION!

RISK OF INJURY and RISK OF PROPERTY DAMAGE from rotating parts of the machine:

- **Always ensure that the sanding sleeve is correctly positioned before switching on the machine!**
- **Always lift the sanding drum off the floor before switch on the machine (fig. 36)!**

8 It is now possible to execute the next sanding step with the machine.

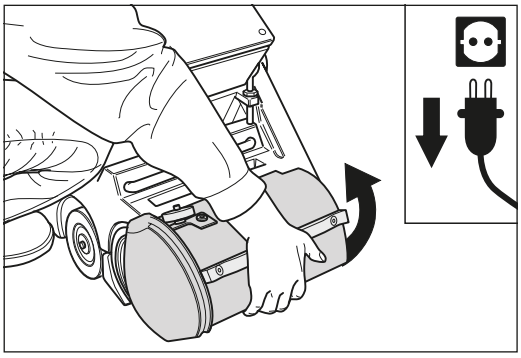


Fig. 37 **Pull the power plug out of the socket** and swing the drum cover upwards.

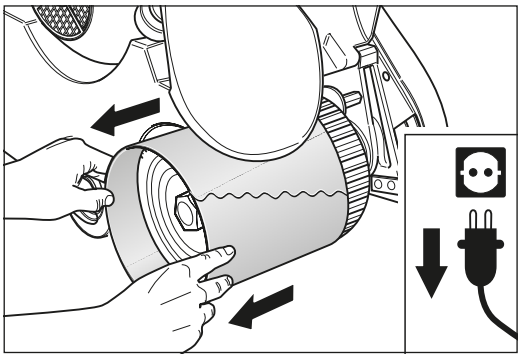


Fig. 38 Pull the worn sanding sleeve off the sanding drum.

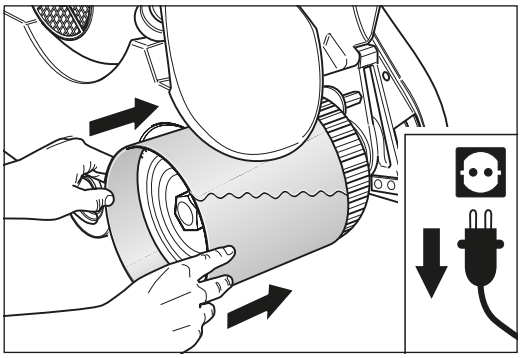


Fig. 39 Push the sanding sleeve over the sanding drum until the abrasive projects equally at both sides of the sanding drum.

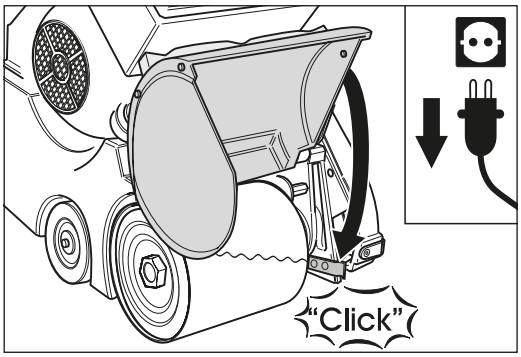


Fig. 40 Swing the drum cover back down to close it. **Make sure you feel it lock into place!**

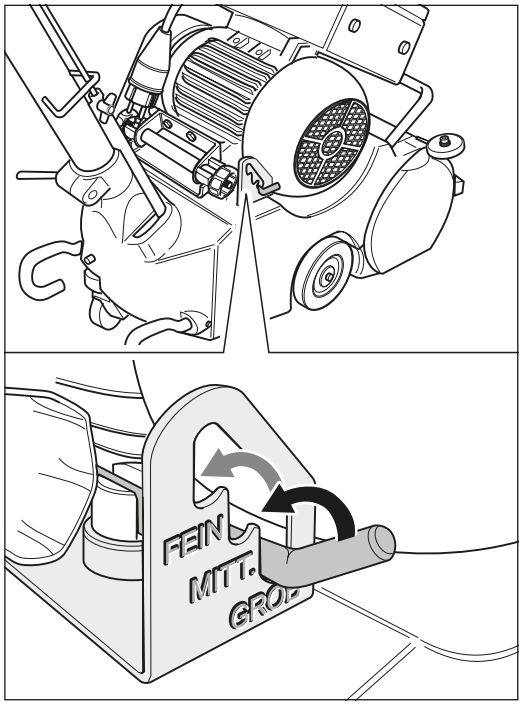


Fig. 41 Different sanding pressure stages can be selected using the setting lever.

5.3 REGULATING THE SANDING PRESSURE

The lever can be used to set three different sanding pressure stages. These three stages - COARSE / MEDIUM / FINE - are designated on the notch plate as -GROB / MITT. / FEIN- (fig. 41).

The sanding pressure stage indications relate to the grit sequence. The sanding pressure should be adjusted inline with the grit sequence and reduced as the fineness of the grit increases. This setting facility permits you to adjust the sanding pressure to the prevailing circumstances.

GROB (COARSE) = high sanding pressure for coarse grits of the abrasive

MITT. (MEDIUM) = middle sanding pressure for medium grits of the abrasive

FEIN (FINE) = low sanding pressure for fine grits of the abrasive

In order to avoid dish-outs when sanding soft wood floors, the sanding pressure should be reduced and the sanding speed increased.

5.4 SANDING WITH THE MACHINE

Before you start sanding, the following conditions must be met:

- The dust bag must be properly attached.
  (➡ *Section 4.1, Preparing the machine for operation*, fig. 13).
- The abrasive must be properly fastened.
  (➡ *Section 5.2, Changing the abrasive*).
- The drum cover must be closed.
  (➡ *Section 5.2, Changing the abrasive*, fig. 35 and fig. 40).
- The V-belts must be tensioned and the belt guard must be closed.
  (➡ *Section 7.8.2, Tensioning of V-belts*, fig. 93, fig. 98 and fig. 100).
- The sanding pressure suitable for your application must be set.
  (➡ *Section 5.3, Regulating the sanding pressure*).
- The power cable must be properly connected.
  (➡ *Section 4.2, Connecting the power cable*).

Once the above conditions have been met and the sanding drum has lifted off the floor (fig. 26), you can start sanding:

1 Switch on the machine (➡ *Section 4.3, Switching on the machine*).

2 Press the lowering lever at the handle downwards (fig. 42) and start sanding on the first sanding path.

The dust bag must be emptied when it is one-third full at the very latest (➡ *Section 5.5, Emptying the dust bag*).

WARNING!

RISK OF DEATH, RISK OF INJURY, RISK OF FIRE:

When operating the machine, be sure to observe the instructions in *Section 2, Hazard warnings and safety instructions*!

CAUTION!

RISK OF PROPERTY DAMAGE:

When sanding, be sure to observe the instructions in *Section 5.1, Application tips*!

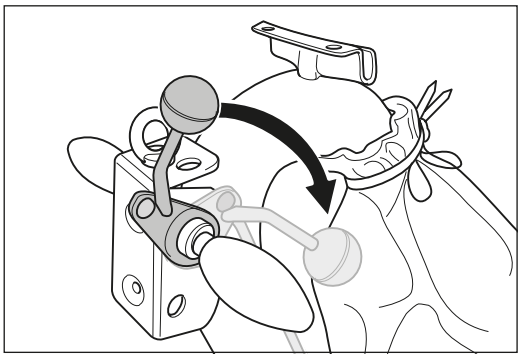


Fig. 42 Press the lowering lever at the handle downwards to lower the sanding drum onto the floor.

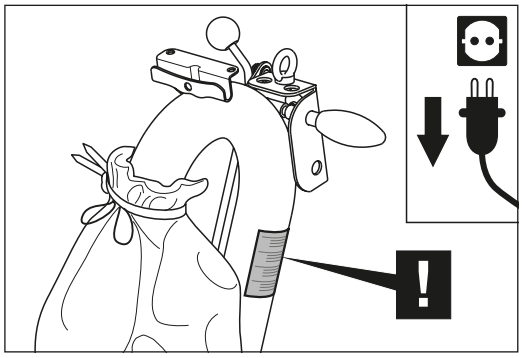


Fig. 43 **Note** the warning on the guide tube!

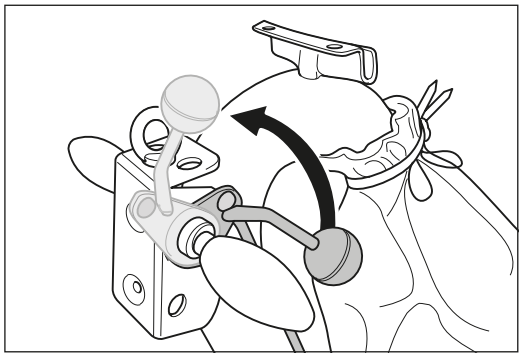


Fig. 44 Lift the sanding drum off the floor by turning the lowering lever at the handle upwards.

5.5 EMPTYING THE DUST BAG

WARNING!

RISK OF FIRE from the formation of sparks while sanding:

- **Note the warning on the guide tube (fig. 43)!**
- **The dust bag must always be removed from the machine directly after sanding and emptied into a non-combustible container outdoors!**
  Cover this container with a non-combustible cover and be certain to store it and the dust bag outdoors in non-combustible environment!
- **Always transport and store used dust bags in closed and non-combustible containers!**

HEALTH RISK caused by dust:

In order to ensure that the dust values in the air do not exceed the prescribed threshold levels, please note:

- **The dust bag must be emptied when it is one-third full at the very latest in order to prevent a deterioration of the suction performance due to the lack of filtering surface area!**
- **Do not work with an overfilled dust bag!**
- **The dust bag must be emptied outdoors!**
- **When emptying the dust bag, wear a respiratory protective mask (at least filter class P2)!**
- **Do not wash, patch or repair the dust bag in any other manner!**
- **A damaged dust bag must be replaced immediately by a new original LÄGLER® dust bag for the ELF (part numbers in *Section 11, Spare parts ELF*)!**

Use exclusively original LÄGLER® dust bags for the ELF (part number in *Section 11, Spare parts ELF*)!

1 Lift the sanding drum off the floor by turning the lowering lever at the handle upwards (fig. 44).

2 **Switch off the machine and pull the power plug out of the socket!**

3 **Wear the respiratory protective mask (at least filter class P2)!**

4 Remove the MultiClip (fig. 45, 1 and 2) and open the cord at the dust bag (fig. 45, 3).

5 Take the dust bag away and close it with the cord.

6 **Empty the dust bag into a non-combustible container outdoors! Cover this container with a non-combustible cover and be certain to store it and the dust bag outdoors in non-combustible environment (RISK OF FIRE)!**

7 Fasten the empty dust bag firmly using the cord and the MultiClip at the end of the guide tube. Ensuring when mounting that the opening of the guide tube is not closed. **Wear the respiratory protective mask!**

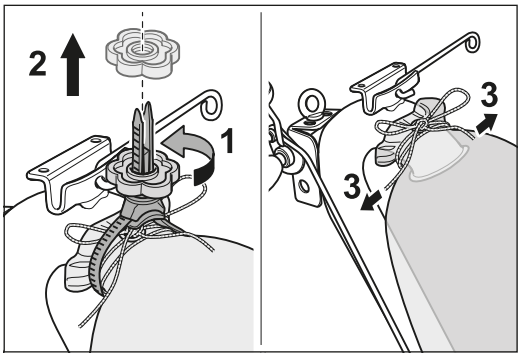


Fig. 45 Remove the MultiClip (1 and 2) and open the cord at the dust bag (3).

Transport and storage

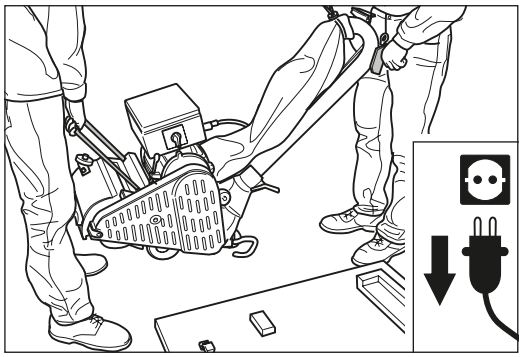


Fig. 46 Carry the ELF on the bracket and on the handle of the guide tube.

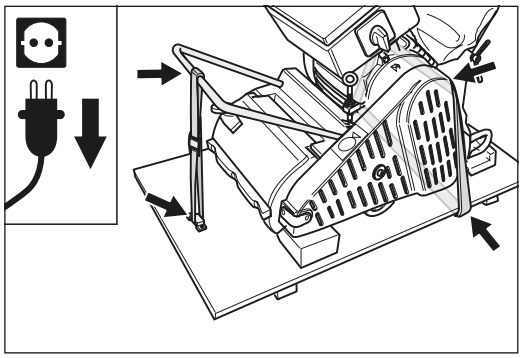


Fig. 47 Transport or storage of the machine on the bottom part of the transport crate.

WARNING!

RISK OF DEATH and RISK OF PROPERTY DAMAGE:

When transported in a car or the like, the machines and all parts must be secured against sliding!

RISK OF FIRE from spontaneous combustion or the formation of sparks while sanding:

- **Oil or wax can lead to spontaneous combustion! Therefore, the machine must always be cleaned carefully directly after sanding!**
- **Always transport and store the machine without dust bag! Store the used dust bag in a closed non-combustible container!**

There is a bracket attached to the front of the machine which can be pulled out of the machine housing for transport purposes. We recommend that two people should carry the machine (fig. 46).
When transporting the machine over roads, paths, concrete or screed surfaces in particular, you should carry the ELF or use the transport trolley TransCart (part number in *Section 11, Spare parts ELF*).
This prevents soiling to the wheels and sanding drum and does not have a negative effect on the sanding results.

ATTENTION!

- **During transport or storage, place a flat piece of wood between the floor surface and machine housing! This prevents the housing from slipping and stops the sanding drum being in direct contact with the floor!**
- **During transport or storage, the machine can also be firmly lashed to the bottom part of the supplied transport crate using two belts (fig. 47)! This will prevent damage to the sanding drum and stop the wheels becoming out of round!**

6.1 DISMANTLING THE MACHINE BEFORE TRANSPORTATION

For transportation, the machine can be dismantled into three parts: Guide tube, motor and machine housing. During manual transport over roads and pavements, to protect the wheels and sanding drum, use the TransCart (part number in *Section 11, Spare parts ELF*).

1 Lift the sanding drum off the floor by turning the lowering lever at the handle upwards (fig. 48).

2 **Switch off the machine and pull the power plug out of the socket!**

3 Empty the dust bag (➡ *Section 5.5, Emptying the dust bag*).

4 Loosen the two motor nuts at the motor bearing bracket (fig. 49).
The motor nut must only be backed out from the fitting between the motor nut and motor bearing bracket, and not completely removed (fig. 50).

5 Open the belt guard (fig. 51).

6 Release the tension of the V-belts by turning the eye bolt at the motor counterclockwise (fig. 52).

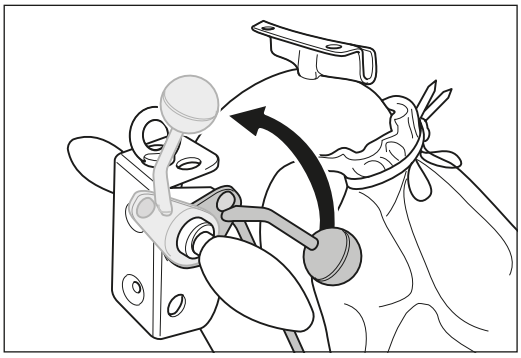


Fig. 48 Lift the sanding drum off the floor by turning the lowering lever at the handle upwards.

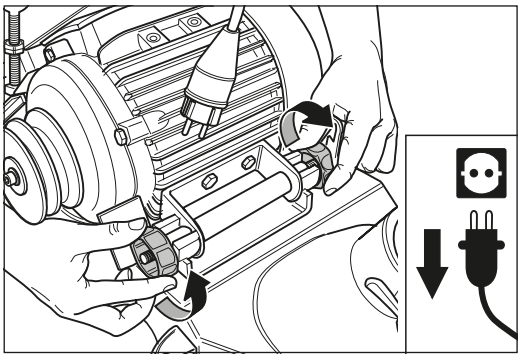


Fig. 49 Loosen the two motor nuts.

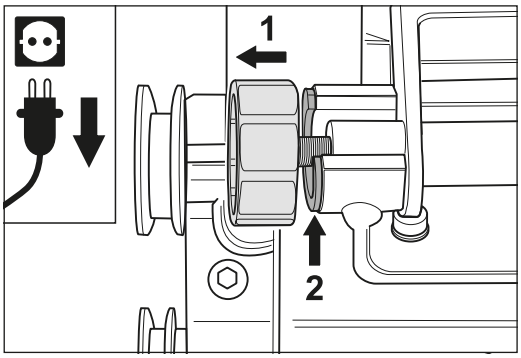


Fig. 50 Turn the two motor nuts out so far (1) until the two nuts used to fit into the motor bearing bracket are exposed (2).

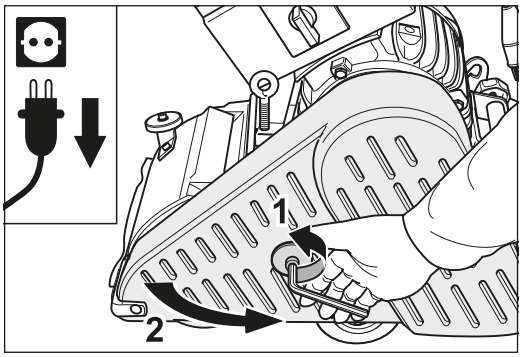


Fig. 51 **Pull the power plug out of the socket** and open the belt guard.

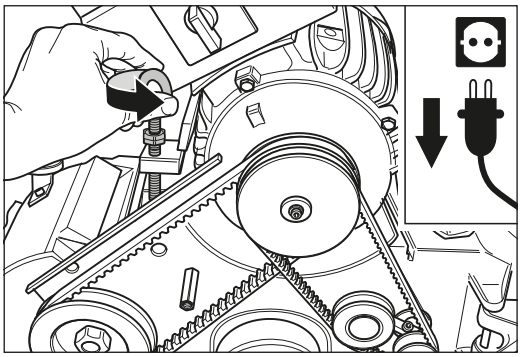


Fig. 52 Release the tension of the V-belts by turning the eye bolt at the motor counterclockwise.

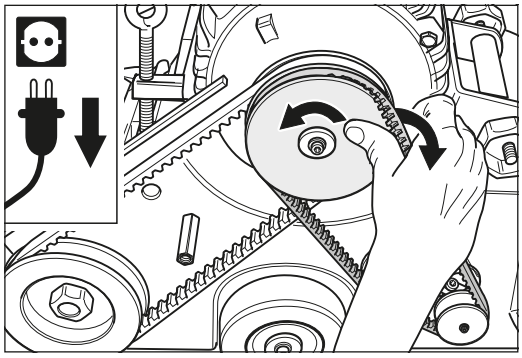


Fig. 53 Remove the suction V-belt.

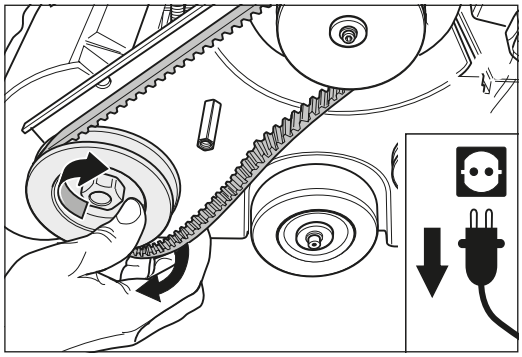


Fig. 54 Allow the drive V-belt to run off the lower pulley. If necessary, use the box wrench (see tool kit) to help you. Turn the pulley **exclusively clockwise** in order not to loosen the nut!

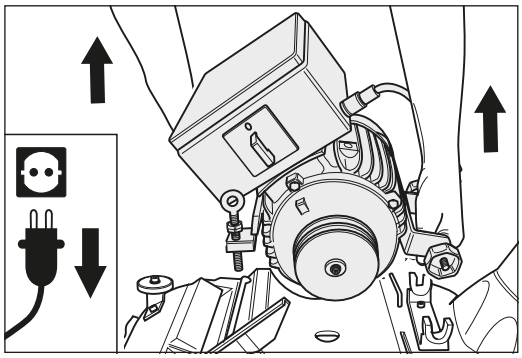


Fig. 55 Remove the motor from the machine housing.

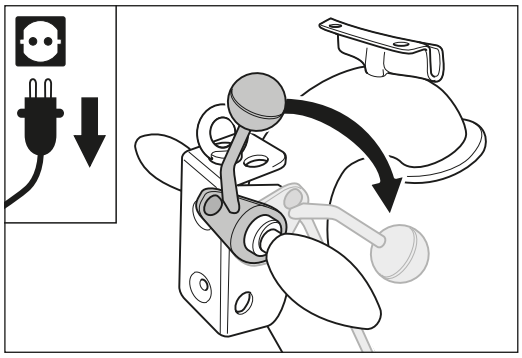


Fig. 56 Press the lowering lever at the handle downwards to lower the sanding drum onto the floor.

CAUTION!

RISK OF INJURY:

During dismantling and mounting the V-belts, take care of your fingers ➡ danger of crushing!

7 Turn the motor pulley and allow the suction V-belt to run off the motor pulley (fig. 53).

8 Turn the lower pulley and allow the drive V-belt to run off the lower pulley (fig. 54).
If necessary, use the box wrench (see tool kit) to turn the lower pulley **exclusively clockwise**!

ATTENTION!

Only turn the nut with the box wrench at the lower pulley clockwise, as otherwise the nut will work loose!

9 Remove the motor from the machine housing (fig. 55) and secure it during transport against slipping and damage!

10 Press the lowering lever at the handle downwards (fig. 56) to lower the sanding drum onto the floor.

11 Open the wing screw at the lower rod (fig. 57, 1) and the wing nut at the machine housing (fig. 57, 2).

12 Pull the guide tube out of the machine housing (fig. 57, 3).

ATTENTION!

Do not tighten the wing nut at the machine housing while the guide tube is removed (fig. 58)! Otherwise the machine housing could break!

6.2 ASSEMBLY AFTER TRANSPORTATION

When assembling the ELF after transport, adhere to the following sequence of work steps:

1 Press the lowering lever at the handle downwards (fig. 59, 1).

2 Insert the guide tube into the opening in the machine housing and at the same time insert the upper rod into the lower rod (fig. 59, 2).

3 Carefully tighten the wing screw at the lower rod (fig. 60) and the wing nut at the machine housing (fig. 61).

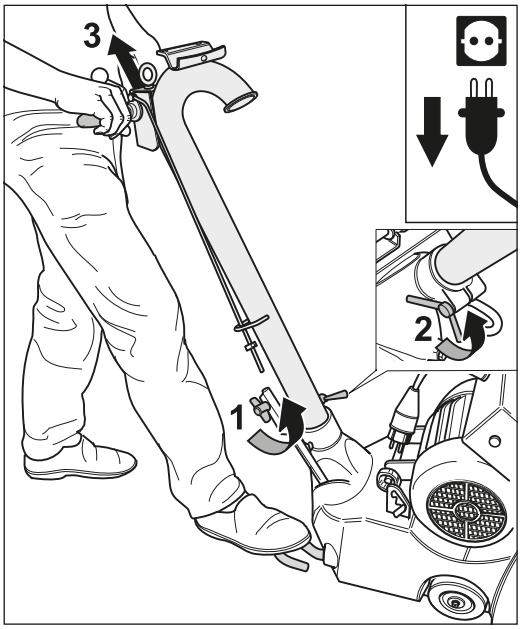


Fig. 57 After opening the wing screw (1) and wing nut (2) which fasten the rod linkage, the guide tube can be drawn out of the machine housing (3).

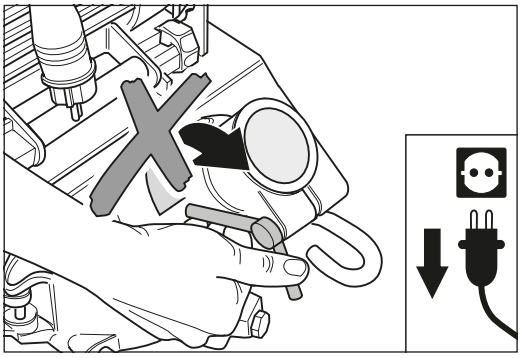


Fig. 58 While the guide tube is removed do **not tighten** the wing nut at the machine housing!

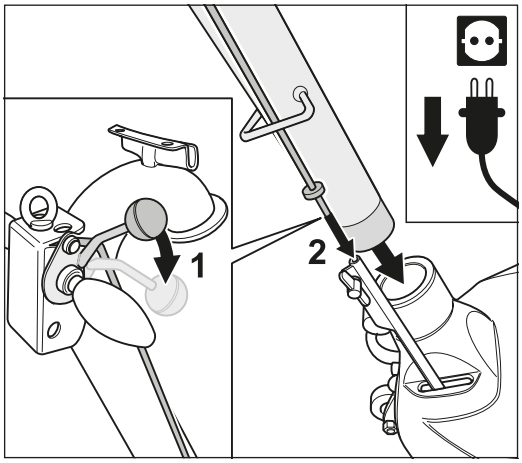


Fig. 59 When inserting the guide tube, make sure that the upper rod of the lowering mechanism feeds in correctly!

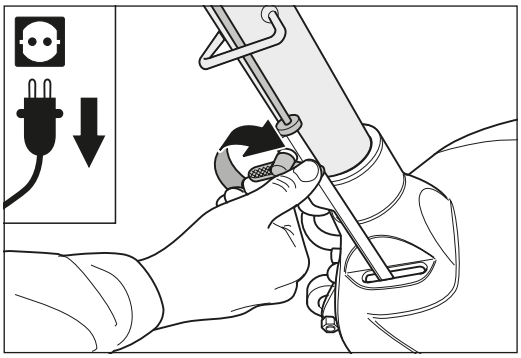


Fig. 60 After inserting the guide tube, carefully tighten the wing screw at the lower rod.

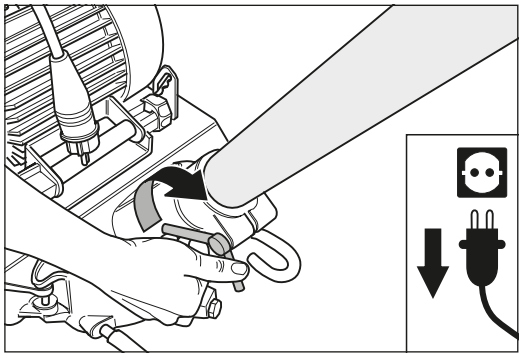


Fig. 61 After inserting the guide tube, carefully tighten the wing nut at the machine housing.

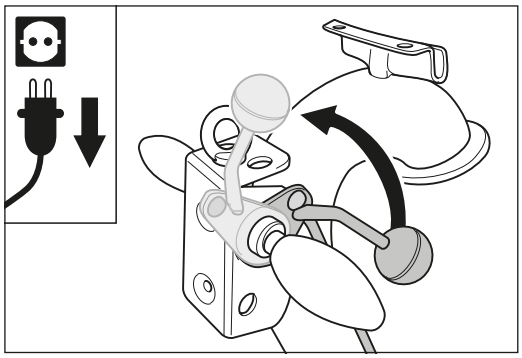


Fig. 62 Lift the sanding drum off the floor by turning the lowering lever at the handle upwards.

4 Lift the sanding drum off the floor by turning the lowering lever at the handle upwards (fig. 62).

5 Place the motor in the motor bearing bracket (fig. 63) and tighten the two motor nuts **slightly** (fig. 64).

6 Mount the V-belts and tension them by turning the eye bolt at the motor clockwise (fig. 65).

7 Tighten the two motor nuts (fig. 64).

8 Close the belt guard (fig. 66).

9 Mount the dust bag at he guide tube (➡ *Section 4.1, Preparing the machine for operation*).

10 Connect the machine to the mains supply (➡ *Section 4.2, Connecting the power cable*).

11 The machine is now ready for use.

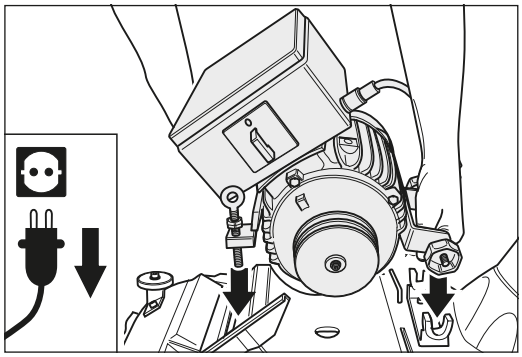


Fig. 63 Place the motor in the motor bearing bracket.

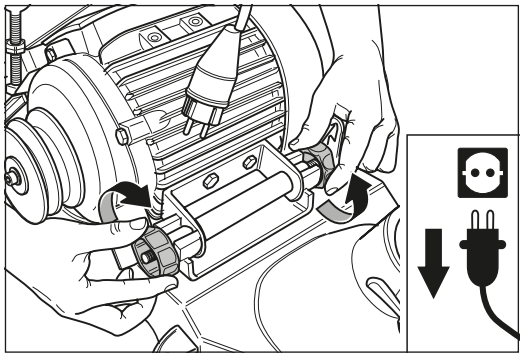


Fig. 64 Lightly tighten the two motor nuts and do **not tighten until** the V-belts have been fitted and tensioned.

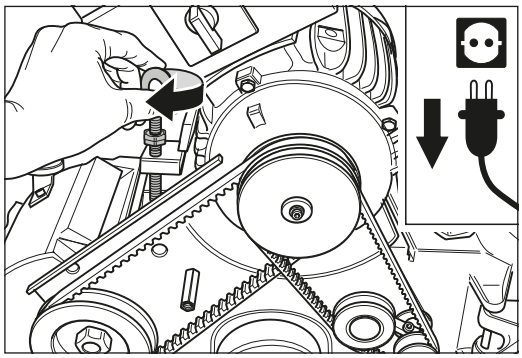


Fig. 65 Mount the V-belts and tension them by turning the eye bolt at the motor clockwise.

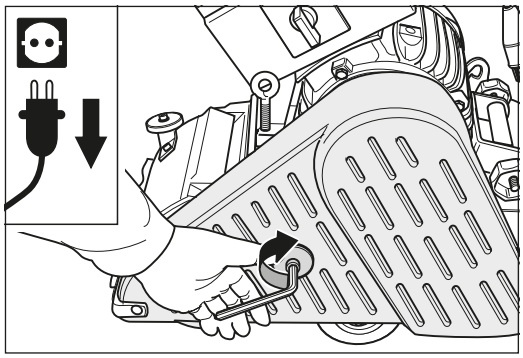


Fig. 66 Close the belt guard.

6.3 STORAGE

WARNING!

RISK OF FIRE from the formation of sparks while sanding:

- **Always transport and store the machine without dust bag!**
- **Store the emptied dust bag in a closed non-combustible container!**

If you wish to keep the machine in storage for a protracted period, ensure that it is kept dry and free of the influence of frost in a location without excessive temperature fluctuations.

Store your unused machine in a dry, closed location out of the reach of children!

ATTENTION!

When storing for long periods, place the machine on the bottom part of the supplied transport crate (fig. 47)! This will prevent damage to the sanding drum and stop the wheels becoming out of round!

Maintenance work and replacement of wearing parts

CAUTION!

RISK OF INJURY and RISK OF PROPERTY DAMAGE:

- **Only use original spare parts from LÄGLER® (part numbers in *Section 11, Spare parts ELF*)! This is the only way to ensure that your machine continues to perform! Warranty claims for foreign parts or damage caused thereby cannot be accepted!**
- **Never conduct the maintenance work and replacement of wearing parts on the newly sanded floor! Thus, you will avoid scratches or other damage to the floor!**

WARNING!

RISK OF DEATH from electrical shock and RISK OF INJURY from rotating parts of the machine:

- **All extensive maintenance work, especially on the electrical equipment, must be conducted by a qualified expert for safety reasons!**
- **All maintenance work and all work on the electrical equipment must be conducted with the machine switched off and with the power plug removed from the socket!**

Periodically but at the latest when you notice that damage has occurred, a variety of maintenance procedures have to be performed. For this work, use exclusively original spare parts from LÄGLER®. Work in a clean, well lit location and proceed in accordance with these operating instructions. In the tool kit, you will find all the tools required to carry out the work described below.

It takes only a minimal amount of time to inspect the machine, but this precautionary measure can save subsequent complaints brought about by minor damage to the machine. Performing regular maintenance work will help to retain the value of the machine and is also in the interests of your own safety.

7.1 CLEANING AND CARE INSTRUCTIONS

WARNING!

RISK OF FIRE from the formation of sparks while sanding or from spontaneous combustion:

- **There is a high risk of fire when sanding woods with a large amount of resin, oiled or waxed floors or metal! Therefore, the machine must always be cleaned carefully directly after sanding!**
- **Be certain to note the warning notices of the paint, oil and wax manufacturers!**

HEALTH RISK caused by dust and RISK OF PROPERTY DAMAGE:

Clean the machine regularly:

- **Dust and deposits in the guide tube, in the machine housing, in the suction duct, in the fan housing and on the fan insert reduce the suction performance and thus the dust load at the workplace increase excessively!**
- **Dust and deposits on the belt pulleys and V-belts lead to vibrations which have a negative effect on the sanding result!**
- **Never use any cleaning products which contain solvents!**

Before starting work, you should perform the following care procedure in order to ensure that the machine is in full working order and produces the customary high-quality sanding finish:

- Check the sanding drum for damage. Clean the parts carefully and ensure that the rubber coating on the sanding drum is not damaged.

- Check whether the guide roller inside the machine housing can still be turned easily!
  A sluggish or fixed guide roller provokes sparking during sanding and must be replaced without fail (part number in *Section 11, Spare parts ELF*)!

- Clean the wheels of the machine.

- Check the tension of the V-belts and correct it if necessary with the aid of the eye bolt at the motor (➡ *Section 7.8, Replacement and tensioning of V-belts*).
- Check that the lowering rod linkage is easy running.
- Check the dust suction system and the dust bag for leaks and damages.
- Carry out a visual inspection of the electrical equipment (extension cable, plug, couplings).

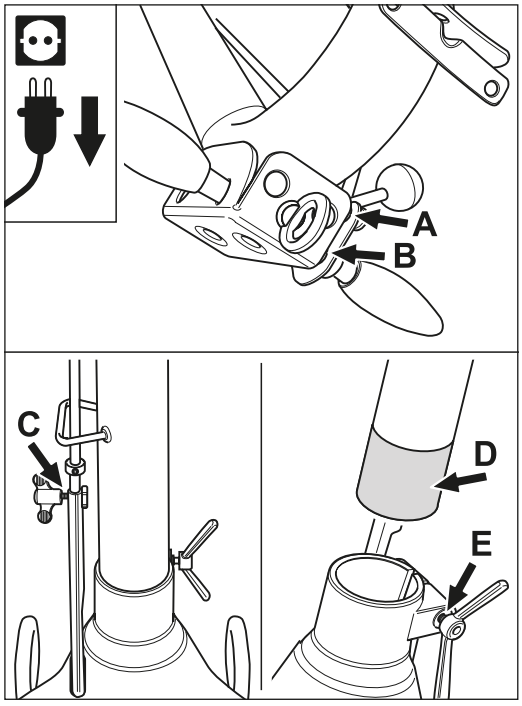


Fig. 67 Lubrication points which should be regularly oiled.

7.2 LUBRICATION

ATTENTION!

Machines from year of manufacture 1998:

The two wheel arms are each mounted in a self-lubricating plastic bushing in the machine housing! This bushing does not require lubrication! Never use sprays such as WD 40 or similar!

Machines up to year of manufacture 1997:

On the bearings of the two wheel arms in the machine housing there is one lubrication nipple each. For general upkeep of the machine, after around 100 operating hours we recommend sparing lubrication of the two lubrication nipples at the wheel bearings using a manual grease gun (tool kit) using ball bearing grease.

In order to guarantee lasting easy running of the moving parts, lubricate at regular intervals at the following lubrication points (fig. 67):

A Top part of the rod linkage at the lever plate
B Lever plate on the handle shaft
To do this, tilt the machine slightly to one side and allow a small amount of oil to run into the lubrication points.

C Wing screw on the bottom part of the rod linkage
D Guide tube in the machine housing
E Wing nut at the machine housing

Use customary lubricating oil for these lubrication points - never use grease or sprays such as WD 40 or similar!

7.3 CHECKING THE MACHINE SETTING

ATTENTION!

The best working result is achieved when the abrasive sands centrally! Only with this setting is it possible to avoid the abrasive from sanding too deep on one side, resulting in unwanted sanding marks!

From time to time, or as a result of incorrect transportation, it is possible for the machine to become incorrectly adjusted. Incorrect adjustment is indicated by one-sided sanding of the sanding drum, which can lead to sanding tracks and complaints. Correction of machine setting is performed as follows:

1 Lift the sanding drum off the floor by turning the lowering lever at the handle upwards (fig. 68).

2 **Switch off the machine and pull the power plug out of the socket!**

3 Tilt the machine backwards over the safety guards (fig. 69) so that you can see the wheel bearings and place it down carefully on the floor (fig. 70). **Ensure that the machine is standing securely!**

4 The wheel on the belt guard side can be adjusted by releasing the tension screw. The other wheel is firmly fixed using a screw.

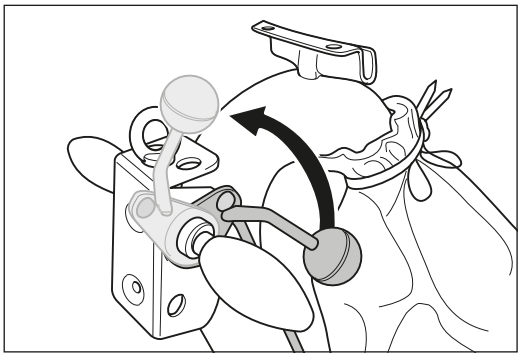


Fig. 68 Lift the sanding drum off the floor by turning the lowering lever at the handle upwards.

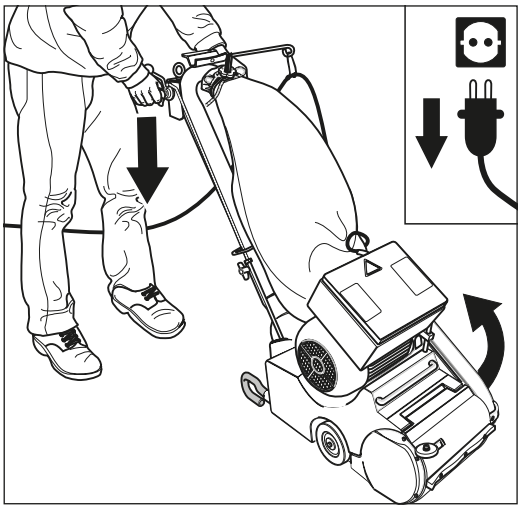


Fig. 69 **Pull the power plug out of the socket** and tilt the machine backwards over the safety guards.

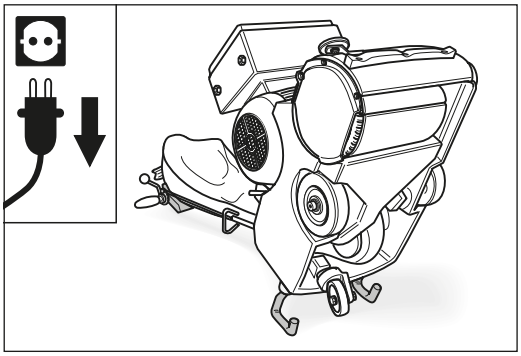


Fig. 70 Place the machine carefully on the floor. **Ensure that the machine is standing securely!**

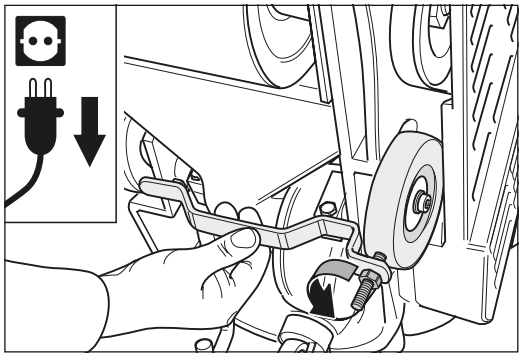


Fig. 71 Take the actual position of the adjustable wheel using the setting fixture (right-hand wheel seen from below).

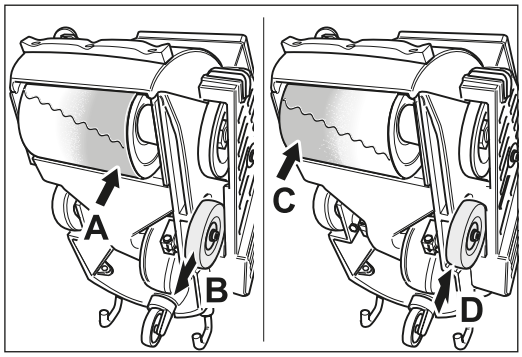


Fig. 72 If the machine is sanding more on side **A**, the wheel must be adjusted in the direction of **B**.
If the machine is sanding more on side **C**, the wheel must be adjusted in the direction of **D**.

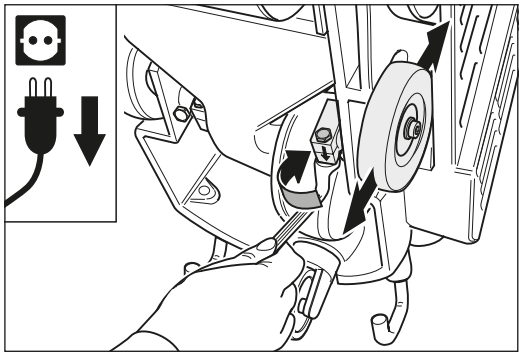


Fig. 73 Release the screw on the right-hand wheel clamp (seen from below).

5 For setting, first take the actual position of the adjustable wheel using the setting fixture (right-hand wheel seen from below). Position the fixture against the machine housing in such a way that it rests not only against the machine housing on both sides, but also at the adjustable wheel. If necessary, turn the threaded pin of the setting device. To do this, release the nut of the setting fixture (fig. 71).

6 If the machine **is sanding more heavily on the belt guard side** (**A** in fig. 72), the **wheel** must be adjusted **away from the belt guard** (direction of **B** in fig. 72).

If the machine **is sanding more heavily on the side cover side** (**C** in fig. 72)**,** the **wheel** must be adjusted **towards the belt guard** (direction of **D** in fig. 72).

Now adjust the threaded pin of the setting device in the relevant direction by the required amount.

7 Release the clamping screw at the wheel clamp of the adjustable wheel (fig. 73) and place the setting fixture against the machine housing again.

8 Set the wheel in the required position by means of the setting fixture so that the wheel lining just still makes contact with the threaded pin when turning, and tighten the clamping screw again.

9 Carry out a test sanding to check whether the machine is now correctly adjusted. If not, the process will have to be repeated.

7.4 CHECKING THE DUST PICK-UP

In order to guarantee optimum dust pick-up for your safety and that of others, the following points must be observed:

- Always use original LÄGLER® dust bags (part number in *Section 11, Spare parts ELF*)!
- Never use damaged, washed, patched or in any other way repaired dust bags!
- Check the suction system for blockages or deposits!

7.5 REPLACEMENT OF SANDING DRUM

Use exclusively original LÄGLER® sanding drums (part number in *Section 11, Spare parts ELF*)!

1 Lift the sanding drum off the floor by turning the lowering lever at the handle upwards (fig. 68).

2 **Switch off the machine and pull the power plug out of the socket!**

3 Tilt the machine backwards over the safety guards (fig. 69) and place it down carefully on the floor (fig. 70). **Ensure that the machine is standing securely!**

4 Swing the drum cover upwards on the front of the machine housing (fig. 74).

5 Remove the abrasive from the sanding drum (➡ *Section 5.2, Changing the abrasive*).

6 Open the drum nut by turning the box wrench (see tool kit) **clockwise (left-hand thread**) and unscrew the drum nut (fig. 75).
If necessary, take a soft hammer to help you loosen the nut.
Never use a steel hammer!

7 Turn the sanding drum in such a way that the groove is pointing upwards to ensure that the parallel key is not lost (fig. 76).

8 Now pull the sanding drum out sideways out of the housing. **If the sanding drum is too stiff to move, use a lath (fig. 77) to dislodge it, so as not to damage the machine! Never attempt to loosen the sanding drum by hitting with a hammer!**

9 Clean the shaft stump and oil it slightly.

10 Push on the new sanding drum. **Pay attention to the parallel key!**

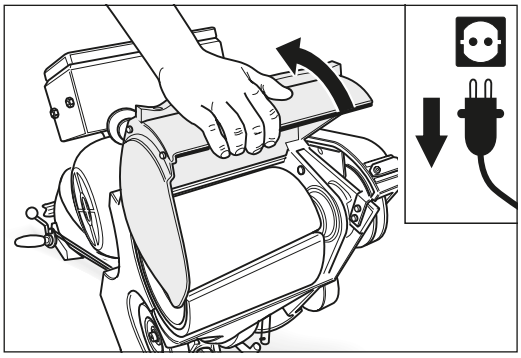


Fig. 74 **Pull the power plug out of the socket** and swing the drum cover upwards.

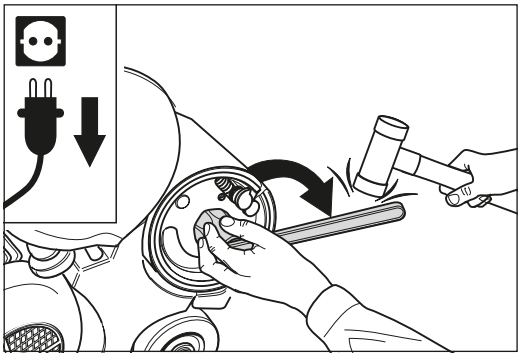


Fig. 75 Release the drum nut **clockwise (left-hand thread)**, if necessary by knocking gently with a soft hammer.
Never use a steel hammer!

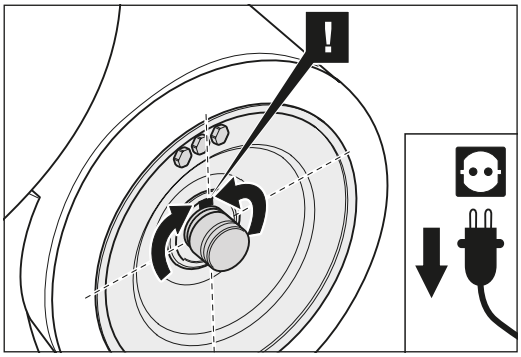


Fig. 76 Turn the sanding drum in such a way that the groove is pointing upwards to ensure that the parallel key is not lost.

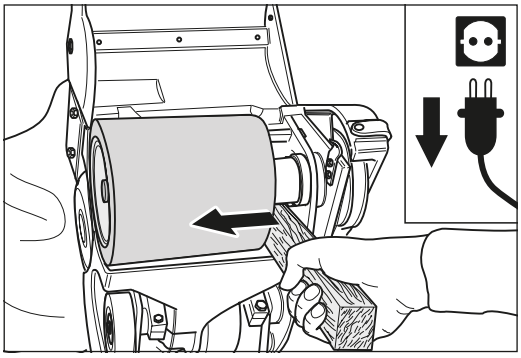


Fig. 77 If the sanding drum is too stiff to be removed, carefully lever it away with a lath.
Never use brute force!

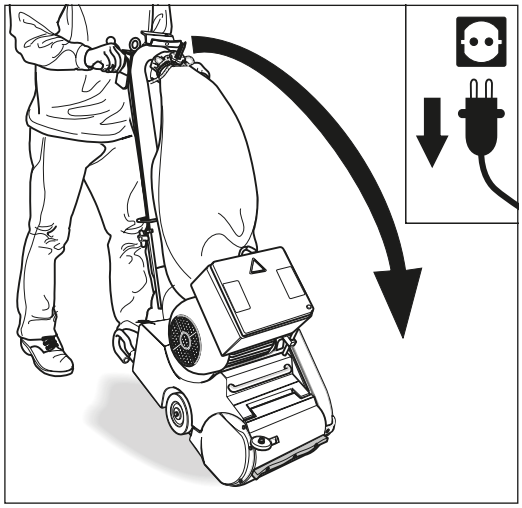


Fig. 78 **Pull the power plug out of the socket!** Tilt the machine forward.

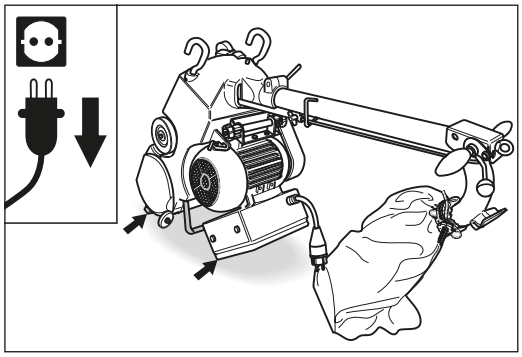


Fig. 79 Place the machine carefully on the floor. **Ensure that the machine is standing securely!**

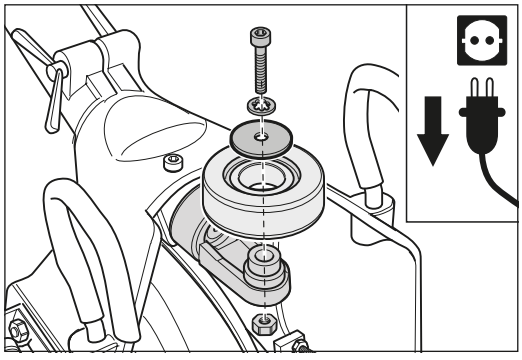


Fig. 80 Remove the screw with the washers and nut in the center of the wheel and take off the back wheel. Assemble in reverse order.

11 Fit the drum nut and observe the following:
- the drum nut must be turned **counterclockwise (left-hand thread)**
- the side of the drum nut **with thread undercut** (= side without internal thread) must be in contact **with the sanding drum**.

ATTENTION!

If the drum nut is mounted incorrectly, the sanding drum cannot be fastened and remains movable on the sanding shaft!

12 Perform the remaining assembly steps in reverse order.

7.6 REPLACEMENT OF REAR WHEEL

Use exclusively original LÄGLER® rear wheels (part number in *Section 11, Spare parts ELF*)!

7.6.1 REPLACEMENT OF REAR WHEEL ONLY

1 Lift the sanding drum off the floor by turning the lowering lever at the handle upwards (fig. 68).

2 **Switch off the machine and pull the power plug out of the socket!**

3 Tilt the machine forward (fig. 78) and place it down carefully on the floor (fig. 79). **Ensure that the machine is standing securely!**

4 Release the screw in the center of the wheel and remove the screw, washers and nut (fig. 80). Ensure that you do not lose the nut.

5 Pull the back wheel off the tail axle housing.

6 Push the new back wheel onto the tail axle housing.

7 Insert the nut in the hexagonal recess of the tail housing and hold onto the nut. Mount the washers and the screw.

7.6.2 REPLACEMENT OF COMPLETE REAR WHEEL ASSEMBLY

1 Lift the sanding drum off the floor by turning the lowering lever at the handle upwards (fig. 68).

2 **Switch off the machine and pull the power plug out of the socket!**

3 Tilt the machine forward (fig. 78) and place it down carefully on the floor (fig. 79). **Ensure that the machine is standing securely!**

4 Release the screw which fastens the tail axle of the rear wheel in the machine housing (fig. 81).

5 Pull the complete rear wheel assembly out of the machine housing (fig. 81).

6 Mount the complete new back wheel in reverse order and fasten it again in the machine housing, aligning the clamping surface of the tail axle towards the screw (fig. 81).

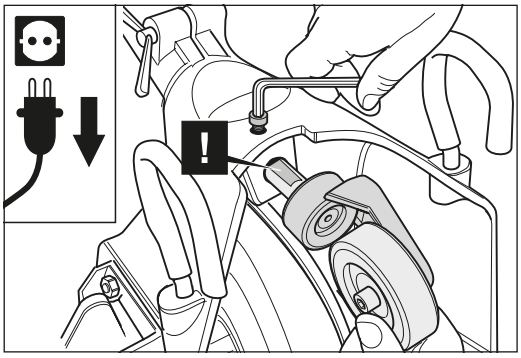


Fig. 81 Release the screw and pull the complete rear wheel assembly out of the machine housing. When mounting, align the clamping surface of the tail axle towards the screw.

7.7 REPLACEMENT OF LATERAL WHEELS

Use exclusively original LÄGLER® lateral wheels (part number in *Section 11, Spare parts ELF*)!

ATTENTION!

For a good sanding result the lateral wheels must always be exchanged in pairs!

1 Lift the sanding drum off the floor by turning the lowering lever at the handle upwards (fig. 68).

2 **Switch off the machine and pull the power plug out of the socket!**

3 Tilt the machine backwards over the safety guards (fig. 82) and place it down carefully on the floor (fig. 83). **Ensure that the machine is standing securely!**

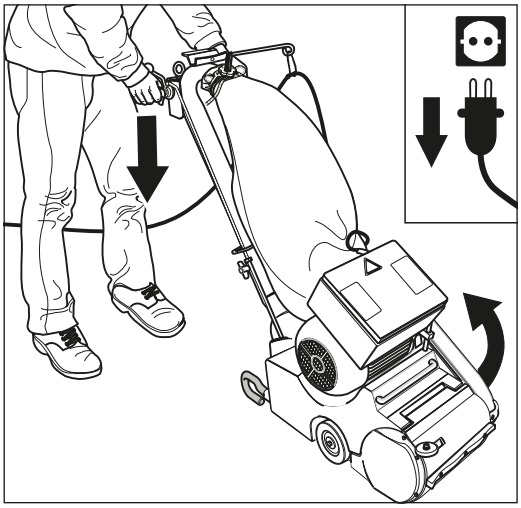


Fig. 82 **Pull the power plug out of the socket** and tilt the machine backwards over the safety guards.

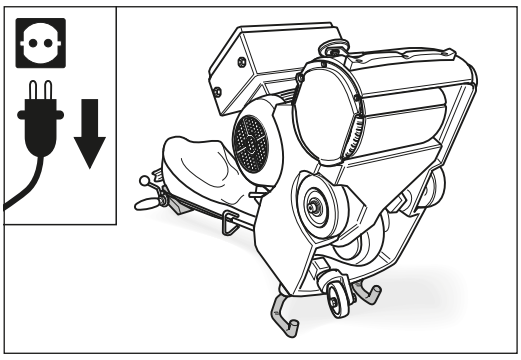


Fig. 83 Place the machine carefully on the floor. **Ensure that the machine is standing securely!**

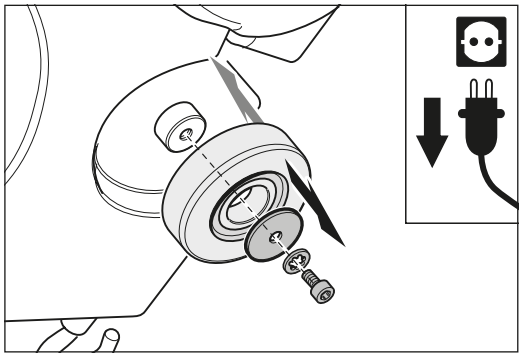


Fig. 84 Remove the screw and washers in the center of the lateral wheel and remove the lateral wheel. Assemble the new wheel in reverse order.

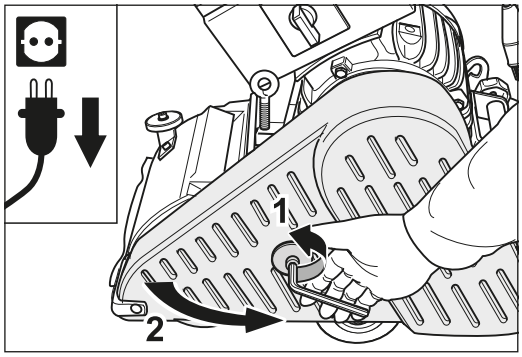


Fig. 85 **Pull the power plug out of the socket** and open the belt guard.

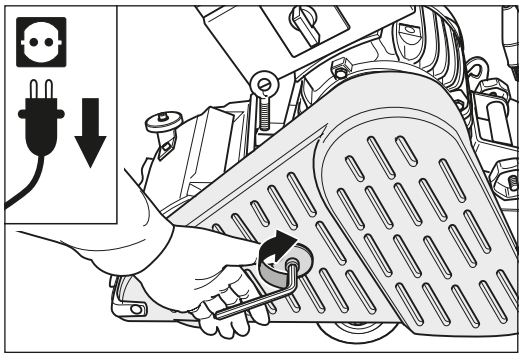


Fig. 86 Close the belt guard.

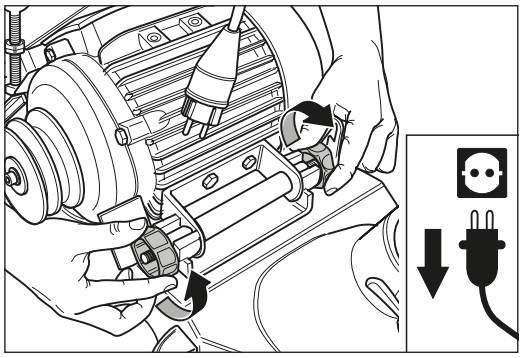


Fig. 87 Loosen the two motor nuts.

4 Release the screw in the center of the lateral wheel and remove the screw and washers (fig. 84).
Before removing the **left** lateral wheel open the belt guard (fig. 85).

5 Pull the wheel off the wheel arm.

6 Push the new wheel onto the wheel arm.

7 Mount the washers and the screw.

8 Tighten the screw again.

9 After you have replaced both lateral wheels, close the belt guard (fig. 86).

NOTE:

As it is so easy and quick to exchange the lateral wheels and the back wheel, it is advisable to use a second set of wheels when performing rough work.

7.8 REPLACEMENT AND TENSIONING OF V-BELTS

7.8.1 REPLACEMENT OF V-BELTS

Use exclusively original LÄGLER® V-belts (part number in *Section 11, Spare parts ELF*)!

1 Lift the sanding drum off the floor by turning the lowering lever at the handle upwards (fig. 68).

2 **Switch off the machine and pull the power plug out of the socket!**

3 Open the belt guard (fig. 85).

4 Loosen the two motor nuts at the motor bearing bracket (fig. 87).

5 Release the tension of the V-belts by turning the eye bolt at the motor counterclockwise (fig. 88).

6 Open the clamping screw of the belt tensioner for the suction V-belt (fig. 89, 1).

7 Turn the belt tensioner clockwise to release the tension of the suction V-belt (fig. 89, 2).

CAUTION!

RISK OF INJURY:

During dismantling and mounting the V-belts, take care of your fingers ➡ danger of crushing!

8 Turn the motor pulley and allow the suction V-belt to run off the motor pulley (fig. 90).

9 Turn the lower pulley and allow the drive V-belt to run off the lower pulley (fig. 91).
If necessary, use the box wrench (see tool kit) to turn the lower pulley **exclusively clockwise**!

ATTENTION!

Only turn the nut with the box wrench at the lower pulley clockwise, as otherwise the nut will work loose!

10 Mount the new V-belts and tension them (➡ *Section 7.8.2, Tensioning of V-belts*).

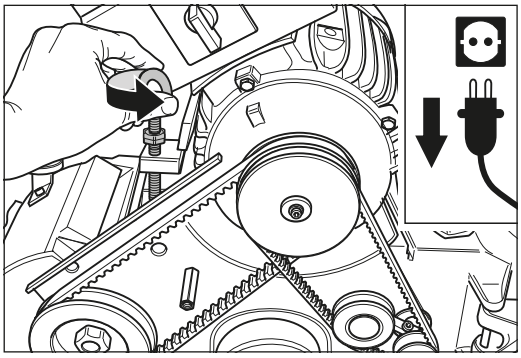


Fig. 88 Release the tension of the V-belts by turning the eye bolt at the motor counterclockwise.

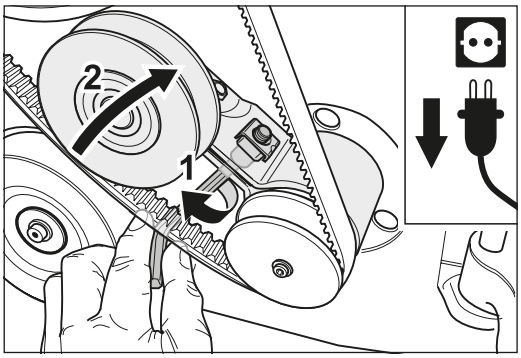


Fig. 89 Open the clamping screw of the belt tensioner (1) and release the tension of the suction V-belt (2).

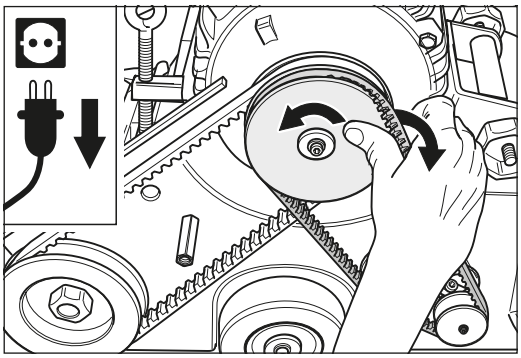


Fig. 90 Remove the suction V-belt.

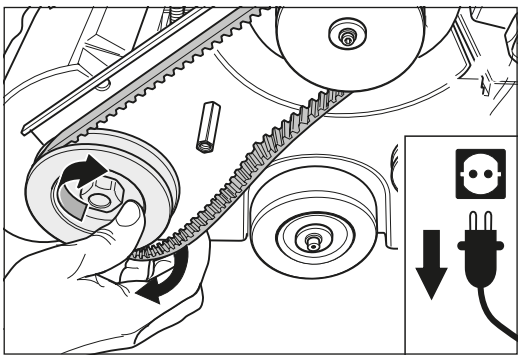


Fig. 91 Allow the drive V-belt to run off the lower pulley. If necessary, use the box wrench (see tool kit) to help you. Turn the pulley **exclusively clockwise** in order not to loosen the nut!

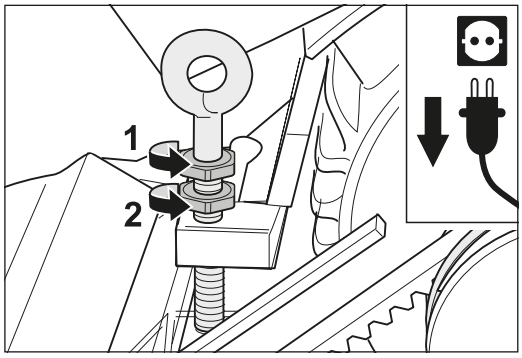


Fig. 92 Loosen the two nuts at the eye bolt at the motor.

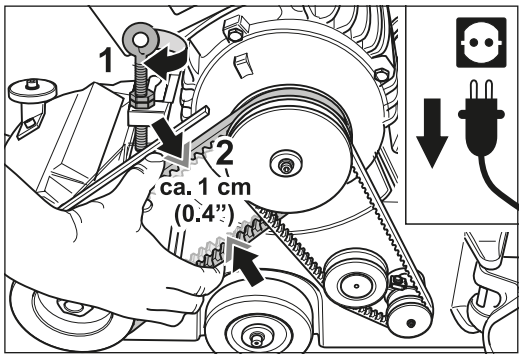


Fig. 93 Tension the drive V-belt by turning the eye bolt at the motor clockwise (1).
Correct tension of the **drive V-belt**:
The V-belt should be compressed approx. 1 cm (0.4") (2).

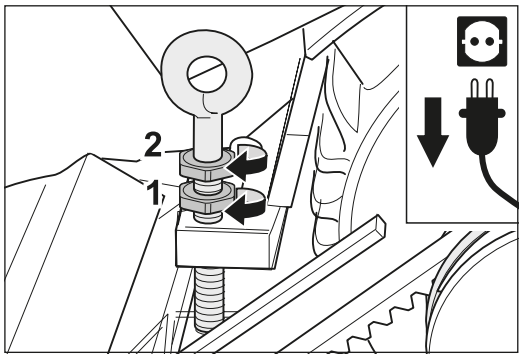


Fig. 94 First tighten the lower nut (1), then the upper nut (2) at the eye bolt at the motor. Then lock both nuts against each other.

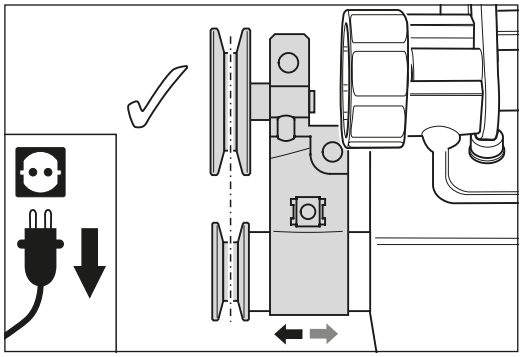


Fig. 95 **Orient the belt tensioner to the fan pulley!** Move the belt tensioner accordingly.

7.8.2 TENSIONING OF V-BELTS

In case to retension the V-belts only, point **1** to **4** in *Section 7.8.1, Replacement of V-belts* must be done first. **Only then** proceed as follows.

1 Open the clamping screw of the belt tensioner for the suction V-belt (fig. 89, 1).

2 Turn the belt tensioner clockwise to release the tension of the suction V-belt (fig. 89, 2).

3 Loosen the two nuts at the eye bolt at the motor (fig. 92) and turn them upwards.

4 Tension the drive V-belt for the sanding drum by turning the eye bolt at the motor clockwise (fig. 93, 1).

Correct tension of the **drive V-belt:**
The slack on the V-belt should be approx. 1 cm (0.4") if compressed with normal effort (fig. 93, 2).

5 First tighten the lower nut (fig. 94, 1), then the upper nut (fig. 94, 2) at the eye bolt at the motor. Then lock both nuts against each other.

ATTENTION!

Orient the belt tensioner to the fan pulley! Move the belt tensioner accordingly (fig. 95)! A wrong orientation from belt tensioner to fan pulley (fig. 96, A or B) increase the wearing of fan axle, pulleys and V-belt extensive! Then these parts must be replaced significant more often!

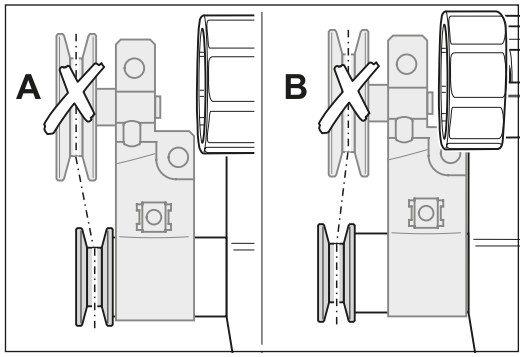


Fig. 96 Avoid position **A** and **B** of the belt tensioner! Otherwise the wearing of fan axle, pulleys and V-belt increase extensive!

6 Turn the belt tensioner counterclockwise to tension the suction V-belt (fig. 97, 1). Keep the belt tensioner in position and tighten the clamping screw at the belt tensioner carefully at the same time (fig. 97, 2).

Correct tension of the **suction V-belt:**
The slack on the V-belt should be approx. 1 cm (0.4“) if compressed with normal effort (fig. 98).

7 Tighten the two motor nuts (fig. 99).

8 Close the belt guard (fig. 100).

ATTENTION!

- **Never tension the V-belts excessively! This can cause damage to the V-belts and ball bearings!**
- **Check the tension of the V-belts after a while! Retension the V-belts if necessary!**

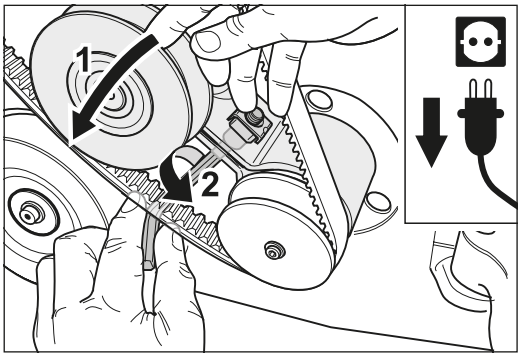


Fig. 97 To tension the suction V-belt, press the belt tensioner to the left (1) and at the same time carefully tighten the clamping screw (2).

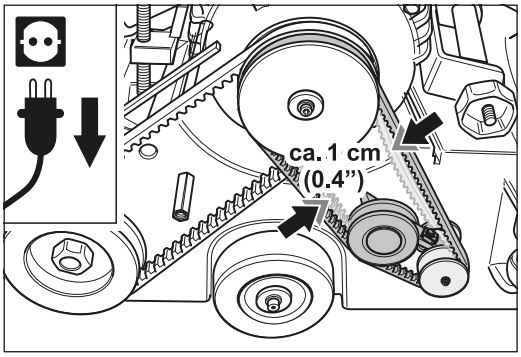


Fig. 98 Correct tension of the **suction V-belt**:
The V-belt should be compressed approx. 1 cm (0.4“).

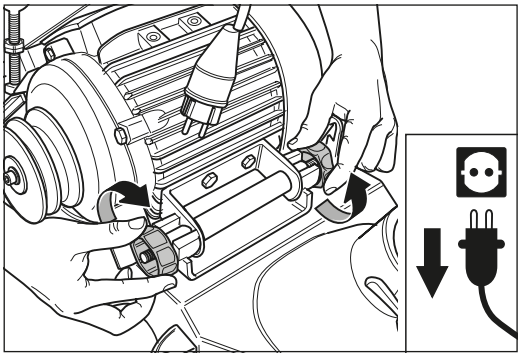


Fig. 99 Tighten the two motor nuts.

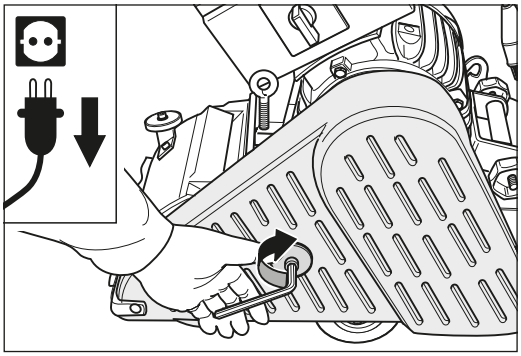


Fig. 100 Close the belt guard.

Regular inspection and maintenance work in accordance with accident prevention regulations

WARNING!

Tests and testing intervals must comply with and be performed in accordance with the applicable regulations and legal requirements in your country!

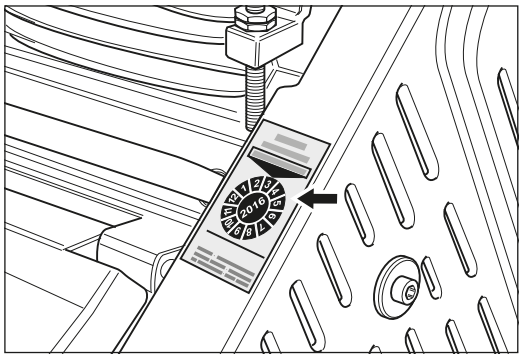


Fig. 101 The inspection label on the belt guard confirms the electrical and mechanical safety of the machine and indicates when the next maintenance check is due.

The electrical operating equipment and machine parts must be inspected at least once a year by a qualified electrician with respect to electrical and mechanical safety, then be repaired as required. Afterwards, the operational safety must be confirmed by the attachment of an inspection label on the machine (fig. 101).

The elements required for the dust suction system must be checked at least once per year by a qualified expert and repaired as required. The functional efficiency must also be confirmed.

Ensure that only original LÄGLER® spare parts are used for maintenance work! You should only allow the customer service work to be conducted by LÄGLER® or an authorized LÄGLER® service center!

The service passport in these operating instructions (*Section 12*) documents when and where your machine was serviced.

Enter the serial number and the year of manufacture of your machine (please see the type plate) on the back cover of these operating instructions! If you do not do this, your service passport is invalid!

Make sure that the maintenance tasks in the service passport are confirmed by filling in a corresponding field with the date, stamp and signature.

WARNING!

In order to ensure the safety of the machines and equipment (= working equipment), the German Ordinance on Industrial Safety and Health (BetrSichV) must be complied with in Germany!

REGULATIONS VALID IN GERMANY

The German Ordinance on Industrial Safety and Health (BetrSichV) requires every employer to define the testing intervals on the work equipment they provide according to a risk analysis and to document all of this.

EXCERPT FROM THE GERMAN ACCIDENT PREVENTION REGULATIONS "DGUV VORSCHRIFT 3" (November 2013)

§ 5 Inspections

(1) The employer must ensure that the proper condition of the electrical systems and equipment is inspected
   1. before using the equipment for the first time and after an alteration or repair before being used again by an electrician or under the supervision of an electrician and
   2. at regular intervals.

The intervals are to be calculated in such a manner that defects which must be handled are detected in a timely manner.

(2) The electrical engineering regulations relevant to the inspection are to be followed.

(3) Upon request by the professional association, an inspection log with specific entries is to be maintained.

(4) The inspection before the first commissioning as per paragraph 1 is not required if the employer receives confirmation from the manufacturer or installer that the electrical systems and equipment have been correspondingly procured in accordance with these accident prevention guidelines.

Table 1B: Recurring inspections of portable electrical equipment:

Systems/equipment (which are to be inspected)
- portable electrical equipment (insofar as is used)
- extension and device connection cables with plugs
- connection cables with plugs
- movable cables with plugs and fixed connections

Inspection interval
Every 6 months as a reference value, **3 months on construction sites*)**.
If an error rate of less than 2% is reached during the inspection, the inspection interval can be extended to a maximum of 1 year (valid for machines on construction sites, in production facilities and workshops).

*) See the BG information "Selection and Operation of Electrical Systems and Equipment on Construction Sites" (DGUV Information 203-006) for more details.

Type of inspection
The proper condition of the machines and equipment must be inspected.

Inspector
Electricians or persons trained in electrical engineering when using suitable measurement and inspection devices.

NOTE:

- All LÄGLER® machines and electrical equipment are subjected to an electrical inspection as well as a thorough visual and functional test before they leave the factory.
- A recurring inspection of the machines and electrical equipment must be conducted in Germany at certain intervals.
- LÄGLER® recommends using the guidelines of the German accident prevention regulations "**DGUV Vorschrift 3**" for inspections and inspection intervals.
- You can, of course, arrange for repairs and recurring inspections of LÄGLER® machines to be conducted by the LÄGLER® service department.

Causes of faults

WARNING!

RISK OF DEATH from electrical shock:

Work on the electrical equipment is to be conducted exclusively by a qualified electrician! The machine must be switched off and the power plug removed from the socket during this work!
The circuit diagram valid for your machine is located in the motor switch box!

RISK OF INJURY due to unsuitable parts:

Make sure that only original LÄGLER® spare parts and original LÄGLER® accessories are used!

This section shows you how to remedy possible malfunctions. If none of the measures listed here are successful, please contact our service department, your retailer or your importer.

9.1 THE MACHINE DOES NOT RUN OR HAS SWITCHED OFF AUTOMATICALLY

- The machine is not connected to the electrical network. Check the following items:
  - Is the motor cable connected to the extension cable?
  - Is the extension cable inserted into the power socket?
- The power socket is not properly connected. This error must be corrected by an expert.
- The electrical safety device of the electrical network interrupted the electrical circuit, e.g. because
  - too many electricity consumers are connected to the same electrical circuit,
  - improper electrical installation.

  The causes for the error must be repaired by an expert.
- The electrical network is not providing sufficient voltage (undervoltage). Use a transformer if necessary (e.g. LÄGLER® part number 708.00.00.100 for 230 V).
- The temperature switch in the motor has switched off the machine because
  - the power cables have a total length of more than 20 m (790”),
  - the power cables have wire cross-sections which are too small:
    at mains voltage 220 V or 230 V are the wire cross-sections smaller than 2.5 mm² (0.0039 sq.in.),
    at mains voltage 400 V are the wire cross-sections smaller than 1.5 mm² (0.0023 sq.in.),
  - or too much pressure was applied to the sanding drum while sanding.

  The motor must cool off and the causes for the problems named above must be remedied.

- An electrical component of the machine (e.g. capacitors, contactor, cable, switch) is defective and must be inspected by a qualified electrician and replaced if necessary.
- Machine for mains voltage 400 V:
  The rotation direction of the motor is wrong. The phase changing switch in the plug of the motor cable must be turned 180°.
  ➡ *Section 4.3.2, Machines with three-phase AC motor*

9.2 THE MACHINE ATTEMPTS TO START UP BUT IS NOT ABLE TO DO SO

- At low temperatures: The machine is too cold and must be heated up to room temperature in a warm room.
- Cables which are too long or too thin are used for the electrical connection:
  - The power cables have a total length of more than 20 m (790").
  - The power cables have wire cross-sections which are too small:
    at mains voltage 220 V or 230 V are the wire cross-sections smaller than 2.5 mm² (0.0039 sq.in.),
    at mains voltage 400 V are the wire cross-sections smaller than 1.5 mm² (0.0023 sq.in.).

  This causes of faults lead to a loss of power and are not allowed for safety reasons!
- The electrical network is not providing sufficient voltage (undervoltage). Use a transformer if necessary (e.g. LÄGLER® part number 708.00.00.100 for 230 V).
- The V-belts are too tight and must be loosened.
  ➡ *Section 7.8, Replacement and tensioning of V-belts*

9.3 THE MACHINE RUNS BUT HAS NO OR VERY LITTLE SANDING POWER CAPACITY

- The abrasive is incorrect or dull and must be replaced.
  ➡ *Section 5.2, Changing the abrasive*
- At low temperatures: The machine is too cold and must be heated up to room temperature in a warm room.

- Cables which are too long or too thin are used for the electrical connection:
  - The power cables have a total length of more than 20 m (790").
  - The power cables have wire cross-sections which are too small:
    at mains voltage 220 V or 230 V are the wire cross-sections smaller than 2.5 mm² (0.0039 sq.in.),
    at mains voltage 400 V are the wire cross-sections smaller than 1.5 mm² (0.0023 sq.in.).

  This causes of faults lead to a loss of power and are not allowed for safety reasons!
- The electrical network is not providing sufficient voltage (undervoltage). Use a transformer if necessary (e.g. LÄGLER® part number 708.00.00.100 for 230 V).
- The V-belts are not tight enough and must be tightened a bit.
  ➡ *Section 7.8, Replacement and tensioning of V-belts*
- The sanding pressure do not suit to the grit of the abrasive and must be corrected.
  ➡ *Section 5.3, Regulating the sanding pressure*

9.4 THE MACHINE VIBRATES INTENSELY AND RUNS NOISILY

- The abrasive does not have the proper tension. The tension must be corrected.
  ➡ *Section 5.2, Changing the abrasive*
- The abrasive is damaged or incorrect and must be replaced.
  ➡ *Section 5.2, Changing the abrasive*
- The sanding drum is dirty or damaged and must be replaced.
  ➡ *Section 7.5, Replacement of sanding drum*
- A V-belt is dirty, damaged or worn-out and must be replaced.
  ➡ *Section 7.8, Replacement and tensioning of V-belts*
- A pulley is dirty or worn-out and must be cleaned or replaced.
- There are clogged materials and deposits in the machine that must be removed.

9.5 THE MACHINE RUNS BUT CREATES A GREAT DEAL OF DUST

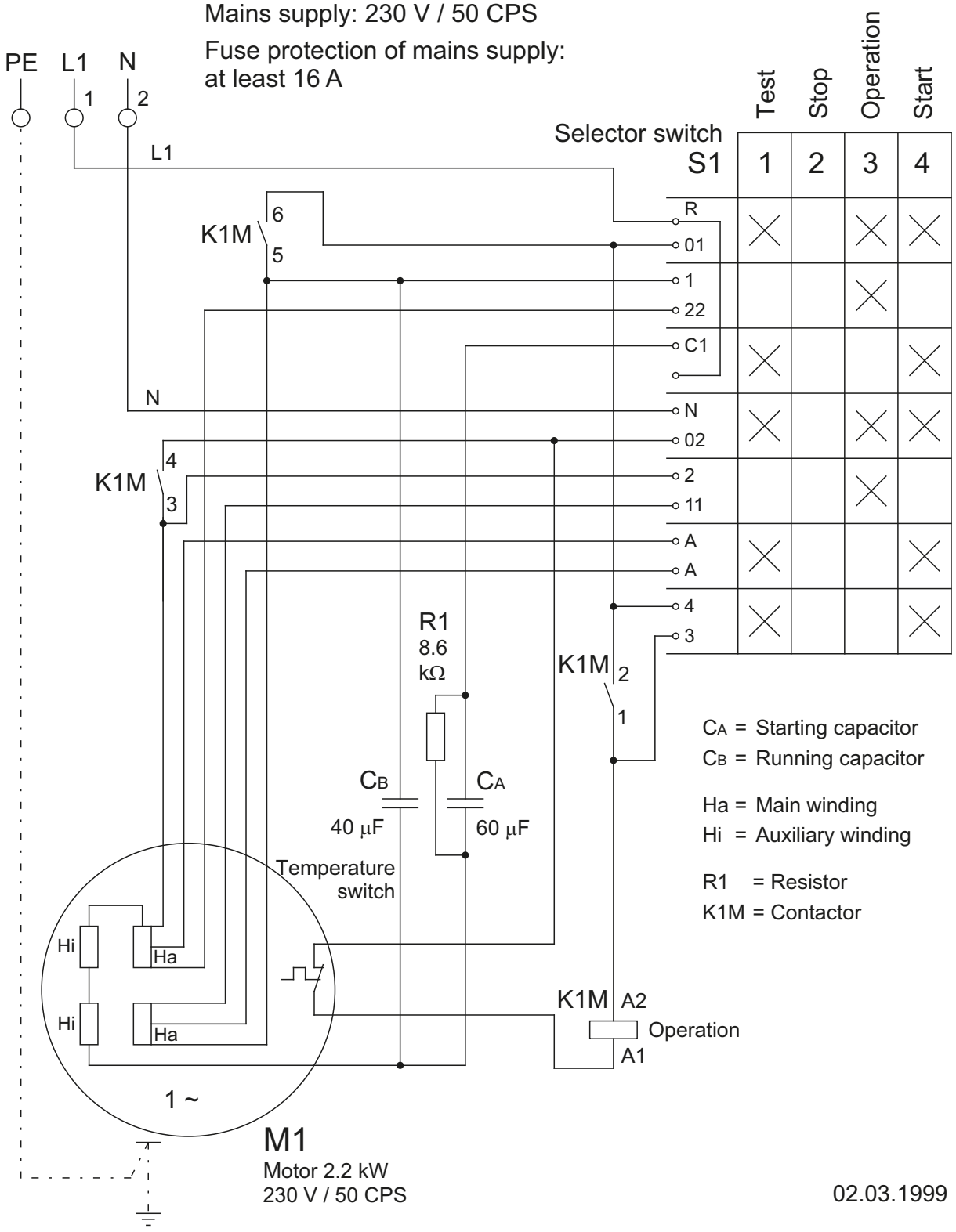
- The dust bag is more than one third full and must be emptied.
  ➡ *Section 5.5, Emptying the dust bag*
- The dust bag is not correctly attached or is damaged and must be replaced.
  ➡ *Section 4.1, Preparing the machine for operation*
- There are clogged materials and deposits in the machine that must be removed.
- The suction V-belt is not tight enough and must be tightened or damaged and must be replaced.
  ➡ *Section 7.8, Replacement and tensioning of V-belts*
- The drum cover is open and must be closed correctly (➡ *fig. 35, fig. 40*).

9.6 SANDING PROBLEMS (WAVES, STRIPS, GROOVES)

- The floor was not vacuumed before sanding. The floor must be vacuumed thoroughly always **directly before each** work step (every sanding step, joint filling or surface treatment).
- The sanding drum was not lifted from the floor while the machine was switched on or off. Always lift the sanding drum off the floor before switching on or off the machine.
  ➡ *Section 4.3, Switching on the machine*
  ➡ *Section 4.4, Switching off the machine*
- The abrasive does not have the proper tension. The tension must be corrected.
  ➡ *Section 5.2, Changing the abrasive*
- The abrasive is damaged or incorrect and must be replaced.
  ➡ *Section 5.2, Changing the abrasive*
- The sanding pressure do not suit to the grit of the abrasive and must be corrected.
  ➡ *Section 5.3, Regulating the sanding pressure*
- The machine setting is incorrect and must be adjusted. The sanding drum must sand centrally.
  ➡ *Section 7.3, Checking the machine setting*
- The sanding drum is dirty or damaged and must be cleaned or replaced.
  ➡ *Section 7.5, Replacement of sanding drum*

- The wheels are dirty or damaged and must be cleaned or replaced.
  ➡ *Section 7.6, Replacement of rear wheel*
  ➡ *Section 7.7, Replacement of lateral wheels*
- A V-belt is dirty, damaged or worn-out and must be replaced.
  ➡ *Section 7.8, Replacement and tensioning of V-belts*
- A pulley is dirty or worn-out and must be cleaned or replaced.
- The lowering rod linkage is running poorly, catching on something or getting stuck. Free movement is necessary.
- The machine is being moved too slowly and must be sped up.
- Too much pressure is placed on the sanding drum while sanding.
  The following causes must be eliminated:
  - additional weight is on the machine,
  - the rear part of the machine is lifted on with the handle while sanding,
  - the lowering lever at the handle is pressed downwards while sanding.

CIRCUIT DIAGRAMS

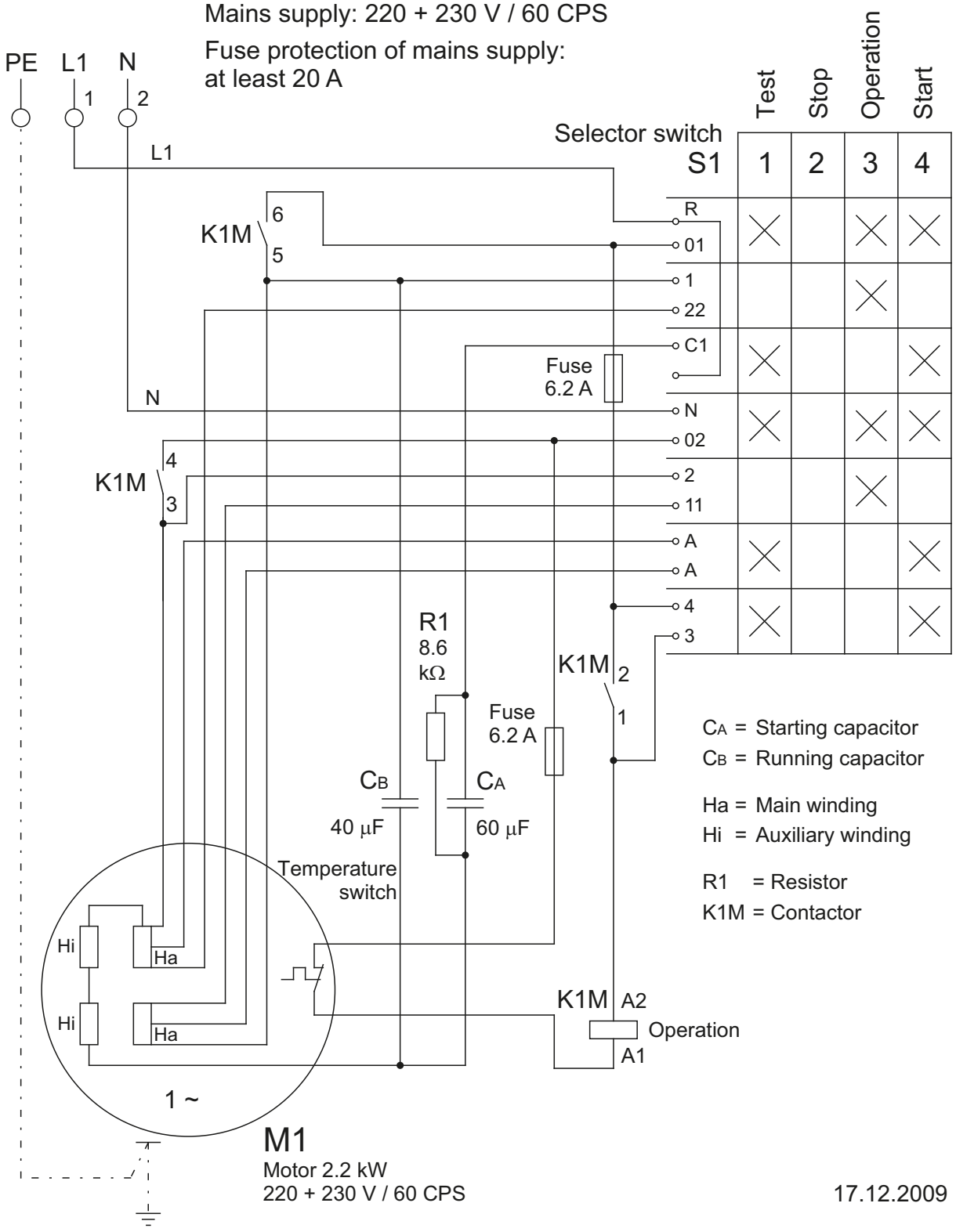


HUMMEL® + ELF: Single-phase AC motor	2.2 kW / 230 V / 50 CPS

EUGEN LÄGLER GMBH Kappelrain 2 D-74363 Güglingen-Frauenzimmern	Phone: 0049 - 7135 - 98 90 - 0 Fax: 0049 - 7135 - 98 90 - 98	e-mail: info@laegler.com Internet: http://www.laegler.com

The circuit diagram valid for your machine is located in the motor switch box.

CIRCUIT DIAGRAMS

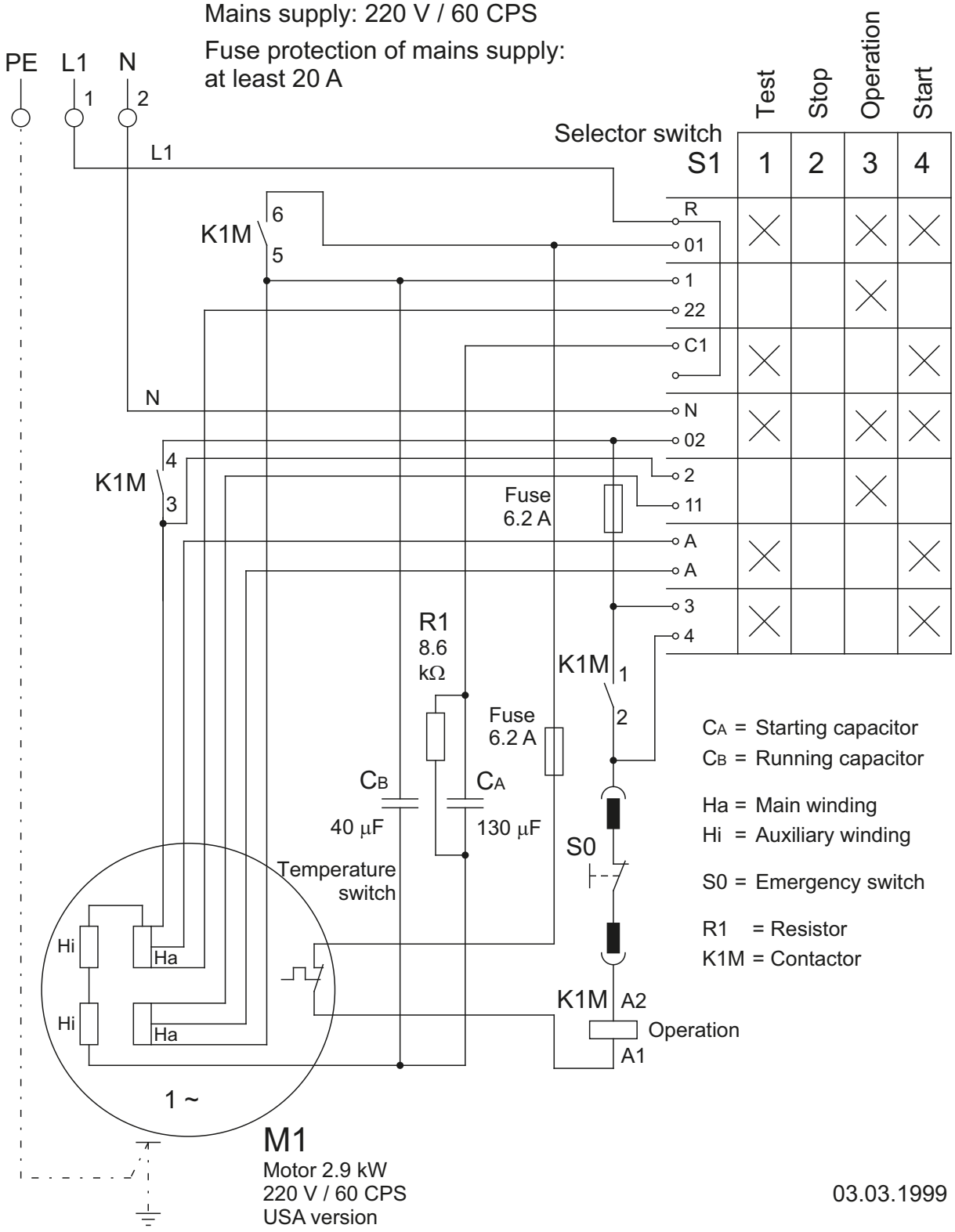


HUMMEL® + ELF: Single-phase AC motor	2.2 kW / 220 V / 60 CPS 2.2 kW / 230 V / 60 CPS

EUGEN LÄGLER GMBH Kappelrain 2 D-74363 Güglingen-Frauenzimmern	Phone: 0049 - 7135 - 98 90 - 0 Fax: 0049 - 7135 - 98 90 - 98	e-mail: info@laegler.com Internet: http://www.laegler.com

The circuit diagram valid for your machine is located in the motor switch box.

CIRCUIT DIAGRAMS



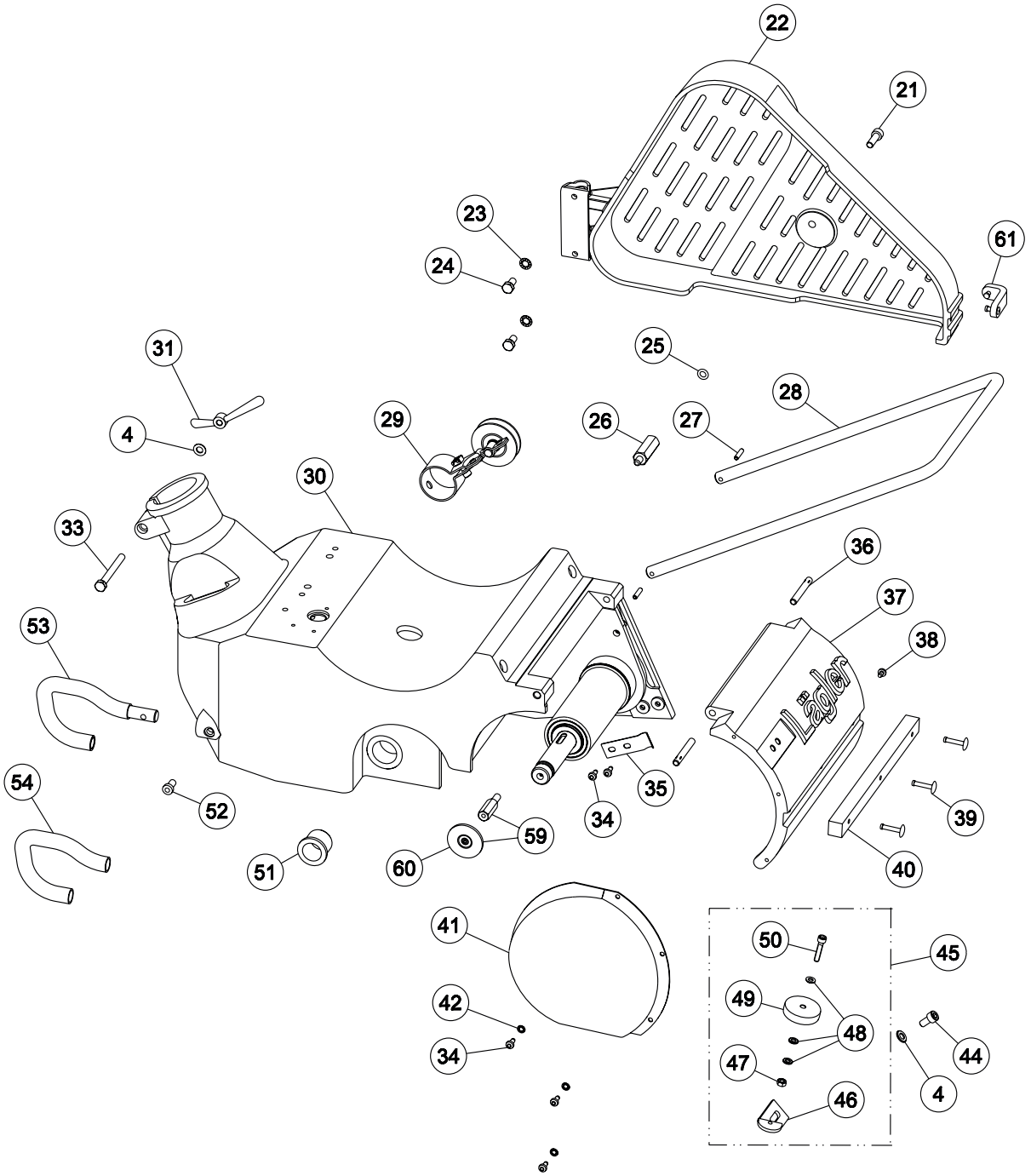
HUMMEL® + ELF: Single-phase AC motor	2.9 kW / 220 V / 60 CPS USA version

EUGEN LÄGLER GMBH Kappelrain 2 D-74363 Güglingen-Frauenzimmern	Phone: 0049 - 7135 - 98 90 - 0 Fax: 0049 - 7135 - 98 90 - 98	e-mail: info@laegler.com Internet: http://www.laegler.com

The circuit diagram valid for your machine is located in the motor switch box.

SPARE PARTS ELF

ATTENTION: Please specify in inquiries and spare part orders always the serial numbers of your machines (→ *Section 3.1*)!



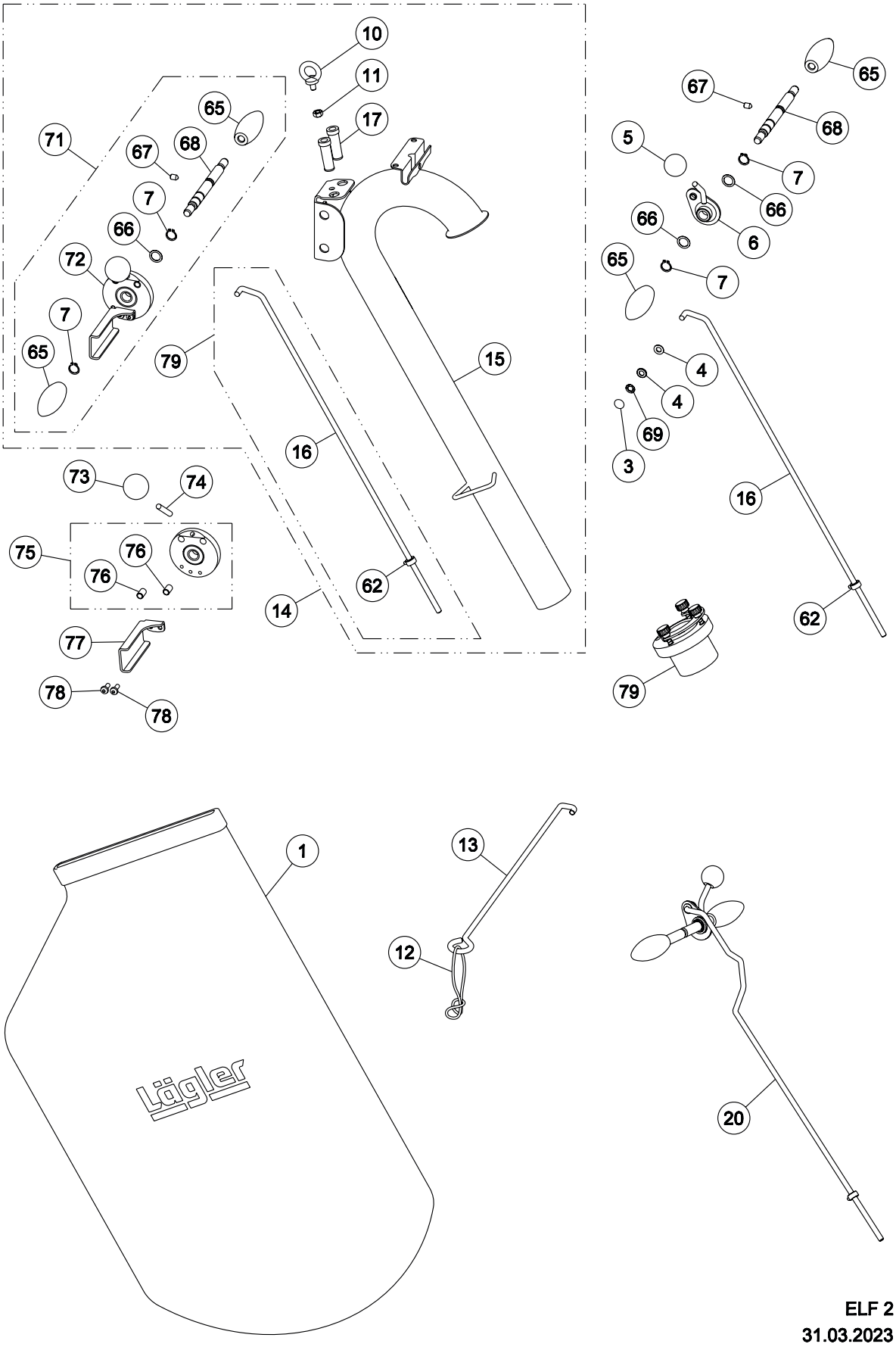
ELF 1
01.11.2014

SPARE PARTS ELF

Item	Part number	Description
4	0125.1008.000	Washer DIN 125 8.4 (M8)
21	0912.1008.025	Screw DIN 912 M8x25
22	100.50.00.100	Belt guard, complete (for HUMMEL until 08/2022 + for ELF)
23	6797.1008.000	Washer DIN 6797 I 8.4 (M8)
24	0933.1008.016	Screw DIN 933 M8x16
25	000.01.40.001	O-ring
26	100.50.04.105	Screw stud
27	1481.0005.022	Spring type straight pin ISO 8752 5x22
28	200.33.01.100	Bracket
29	100.58.00.200	Belt tensioner, complete
30	200.01.00.100	Machine housing ELF 200/250
	300.01.00.100	Machine housing ELF 300
31	000.20.45.081	Wing nut
33	0931.1008.075	Screw DIN 931 M8x75
34	7500.1005.012	Screw DIN 7500 C M5x12
35	200.01.05.100	Cover spring
36	200.01.07.100	Hinged pin
37	200.01.01.100	Drum cover ELF 200/250
	300.01.01.100	Drum cover ELF 300
38	7500.1005.008	Screw DIN 7500 C M5x8
39	7337.1005.033	Rivet DIN 7337 5x33 Al (for HUMMEL until 08/2022 + for ELF, PROFIT)
40	200.01.02.100	Bumper felt ELF 200/250
	300.01.02.100	Bumper felt ELF 300
41	200.01.03.100	Side cover ELF 200/250
	300.01.03.100	Side cover ELF 300
42	6797.1005.000	Washer DIN 6797 I 5.3 (M5)
44	0912.1008.016	Screw DIN 912 M8x16
45	150.60.00.100	Wall-protecting roller with bracket
	300.60.00.100	Wall-protecting roller with bracket, ELF 300
46	150.60.01.100	Holder for wall-protecting roller
	300.60.01.100	Holder for wall-protecting roller ELF 300
47	0934.1006.000	Nut DIN 934 M6
48	0125.1006.000	Washer DIN 125 6.4 (M6)
49	100.60.02.200	Wall-protecting roller
50	0912.1006.030	Screw DIN 912 M6x30
51	000.43.10.252	Plastic bushing
52	7984.1008.016	Screw DIN 7984 M8x16
53	100.44.00.100	Safety guard, complete
54	100.44.01.100	PVC tube
59	200.01.30.100	Guide roller, complete
60	100.45.01.105	Guide roller
61	100.50.05.200	Bumper guard for belt guard, complete

ATTENTION: Please specify in inquiries and spare part orders always the serial numbers of your machines (→ *Section 3.1*)!

SPARE PARTS ELF



ELF 2
31.03.2023

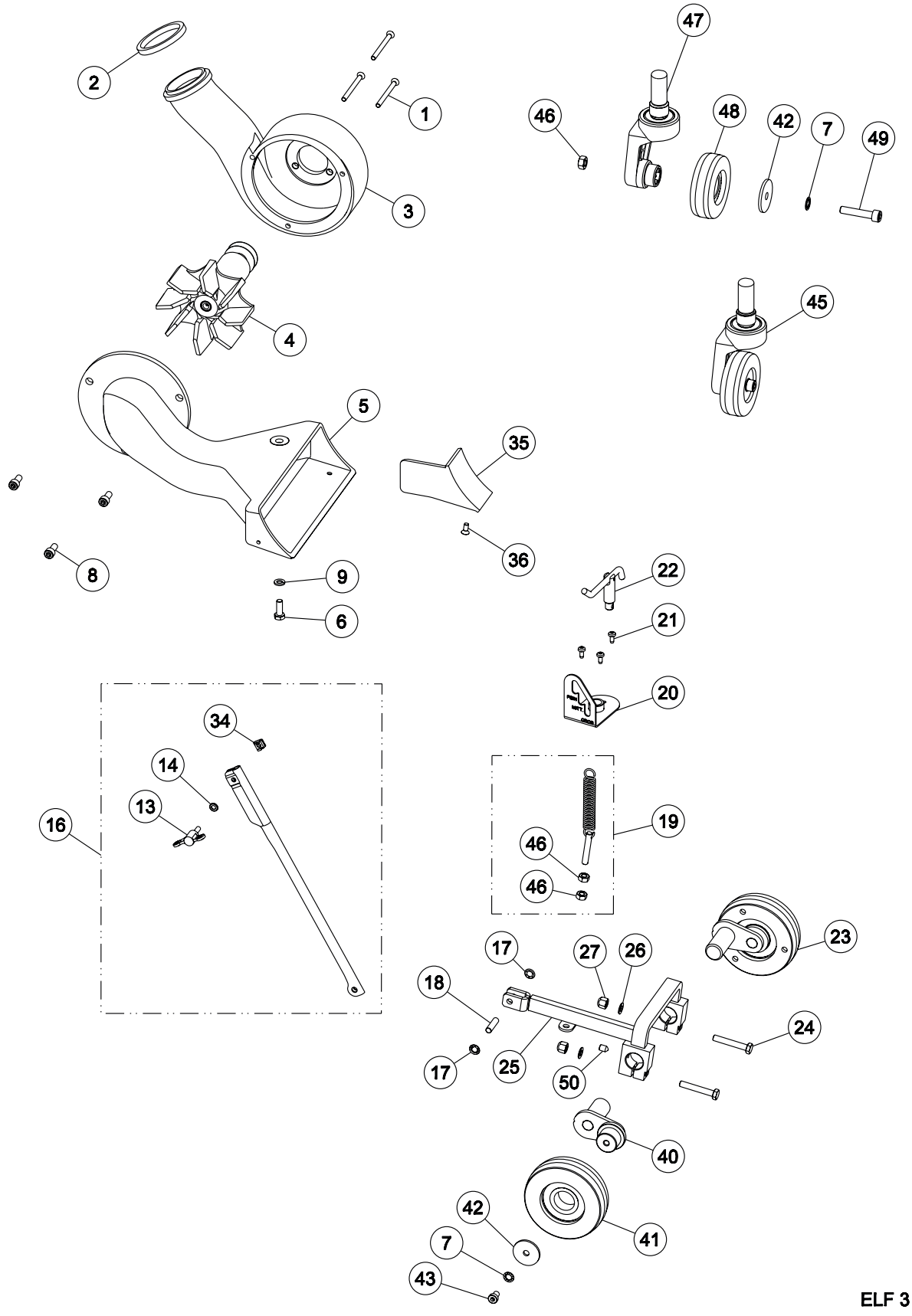
ATTENTION: Please specify in inquiries and spare part orders always the serial numbers of your machines (→ *Section 3.1*)!

SPARE PARTS ELF

Item	Part number	Description
1	100.00.80.105	Dust bag for HUMMEL, SUPERHUMMEL, ELF
3	000.17.21.081	Fixing cap
4	0125.1008.000	Washer DIN 125 8.4 (M8)
5	000.20.56.351	Ball knob
6	100.20.18.200	Lever (for HUMMEL, SUPERHUMMEL until 2019 + for ELF)
7	0471.0015.000	Circlip DIN 471 15x1
10	0580.1008.000	Thread eye DIN 580 M8
11	0980.1008.000	Nut DIN 980 M8
12	00.000.41.002	Strain relief ring
13	100.20.26.100	Cable support, complete
14	100.20.00.200	Guide tube, complete (for HUMMEL until 2019 + for ELF)
	102.20.00.200	Guide tube USA, complete (for HUMMEL until 2019 + for ELF)
	100.21.00.200	Guide tube long, complete (for HUMMEL until 2019 + for ELF)
15	100.20.01.200	Guide tube (for HUMMEL until 08/2022 + for ELF)
	102.20.01.200	Guide tube USA (for HUMMEL until 08/2022 + for ELF)
16	100.20.24.100	Upper rod, complete (for HUMMEL until 2019 + for ELF)
17	000.63.20.133	Rubber grommet
20	100.20.90.200	Upper rod for sinistrals, complete (conversion set, for HUMMEL until 2019 + for ELF)
62	100.20.23.200	Adjusting ring, complete (for HUMMEL until 2019 + for ELF)
65	000.20.31.351	Handle
	000.20.01.001	Handle in wood
66	0988.0015.005	Washer DIN 988 15x21x0.5
67	0914.0008.012	Grub screw DIN 914 M8x12
68	100.20.17.200	Axle for handle
69	000.17.20.081	Quick-fixing-fastener
71	100.20.38.100	Conversion kit Paddle (for HUMMEL, SUPERHUMMEL until 2019)
72	100.20.40.100	Lowering lever (for HUMMEL, SUPERHUMMEL as from 2020)
73	000.20.56.401	Ball knob
74	100.20.45.100	Bar ball knob (for HUMMEL, SUPERHUMMEL as from 2020)
75	100.20.42.100	Disk lowering lever (for HUMMEL, SUPERHUMMEL as from 2020)
76	000.43.11.081	Plastic bushing
77	100.20.46.100	Plate quick lift (for HUMMEL, SUPERHUMMEL as from 2020)
78	7985.1006.816	Screw DIN 7985 M6x16
79	100.14.10.100	Suction adapter for dust collector at guide tube (as from 2004) of HUMMEL, ELF, SUPERHUMMEL, PROFIT

ATTENTION: Please specify in inquiries and spare part orders always the serial numbers of your machines (→ *Section 3.1*)!

SPARE PARTS ELF



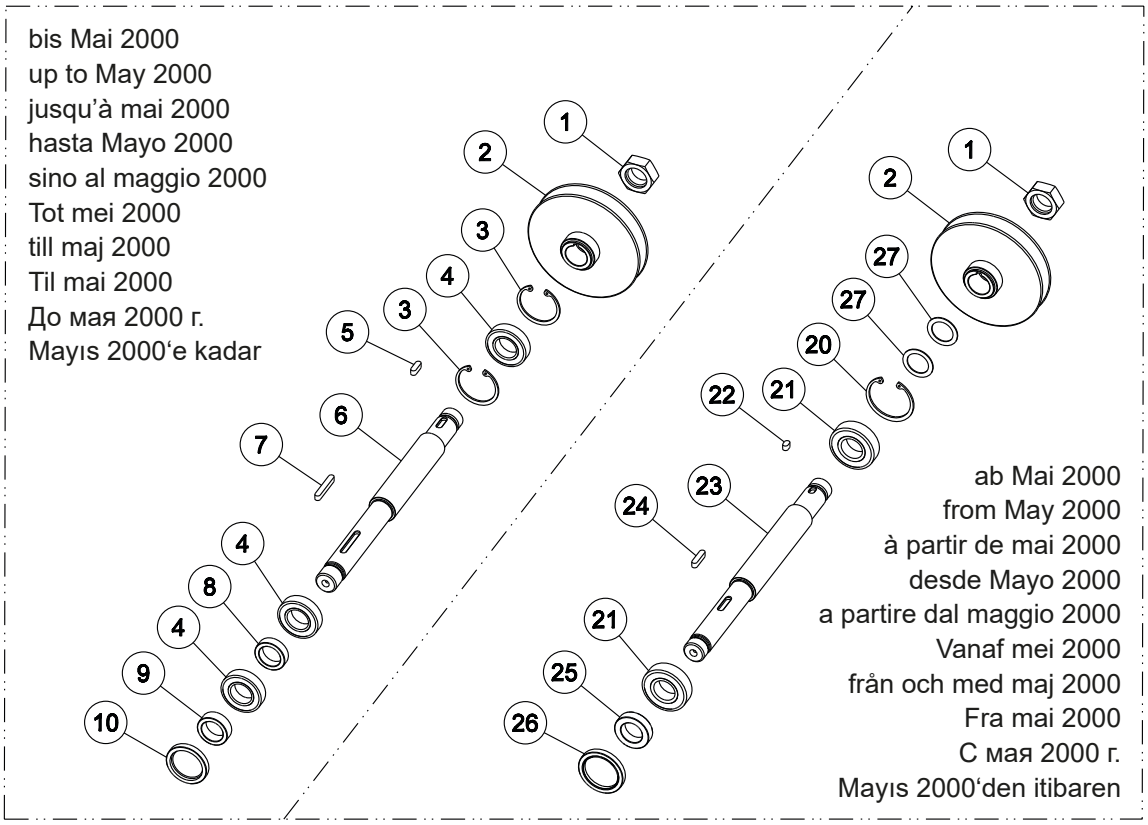
ELF 3
01.05.2015

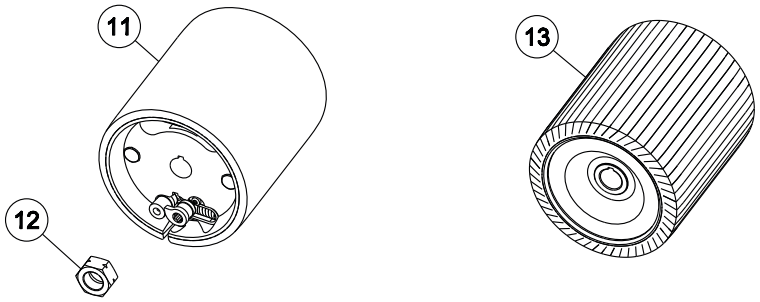
ATTENTION: Please specify in inquiries and spare part orders always the serial numbers of your machines (→ *Section 3.1*)!

SPARE PARTS ELF

Item	Part number	Description
1	0965.1006.870	Screw DIN 965 M6x70
2	200.08.01.100	Sealing ring
3	100.08.00.100	Fan housing (for HUMMEL until 08/2022 + for ELF)
4	100.10.00.200	Fan insert, complete
5	100.14.00.200	Intake duct
6	0933.1008.022	Screw DIN 933 M8x22
7	6797.1008.000	Washer DIN 6797 I 8.4 (M8)
8	0912.1008.018	Screw DIN 912 M8x18
9	0127.1008.000	Spring washer DIN 127 8 (M8)
13	000.20.46.062	Wing screw
14	0125.1006.000	Washer DIN 125 6.4 (M6)
16	100.04.09.100	Lower rod, complete (for HUMMEL until 2019 + for ELF)
17	000.17.20.081	Quick-fixing-fastener
18	100.04.01.200	Pivot pin
19	100.04.25.100	Spring with screw, complete
20	100.04.06.200	Notch plate
21	7500.1005.012	Screw DIN 7500 C M5x12
22	100.04.02.100	Spring tensioner, complete
23	100.05.00.200	Lateral wheel, complete
24	0931.1008.050	Screw DIN 931 M8x50
25	100.04.00.100	Lifting fixture (green, for HUMMEL until 2019 + for ELF)
26	0125.1008.000	Washer DIN 125 8.4 (M8)
27	6330.1008.000	Nut DIN 6330 M8
34	000.50.12.061	Cage nut M6
35	200.14.10.100	Flow part
36	0965.1006.814	Screw DIN 965 M6x14
40	100.05.04.200	Wheel arm
41	100.05.29.100	Lateral wheel (as from 06/1999)
42	000.10.10.085	Washer
43	7984.1008.012	Screw DIN 7984 M8x12
45	100.18.00.300	Rear wheel, complete
46	0934.1008.000	Nut DIN 934 M8
47	100.18.18.300	Tail axle housing, complete
48	100.18.29.105	Rear wheel (as from 2002)
	100.18.09.200	Rear wheel (until 2001)
49	0912.1008.040	Screw DIN 912 M8x40
50	0914.0008.012	Grub screw DIN 914 M8x12

ATTENTION: Please specify in inquiries and spare part orders always the serial numbers of your machines (→ *Section 3.1*)!





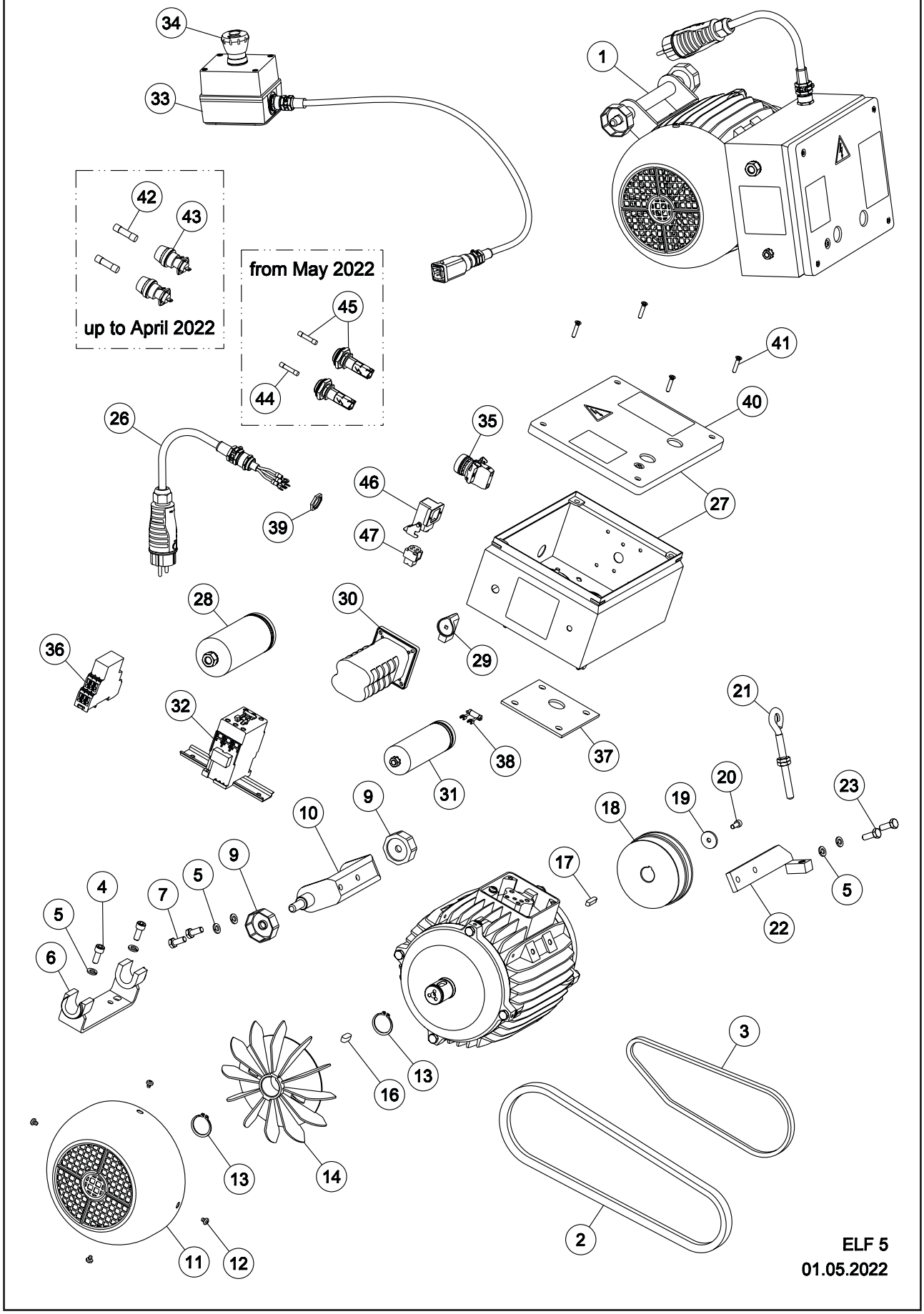
ELF 4
01.06.2013

SPARE PARTS ELF

Item	Part number	Description
1	100.02.05.100	Nut, right-hand thread
2	100.36.00.100	V-belt pulley
3	0472.0047.000	Circlip DIN 472 47x1.75
4	6005.0025.205	Ball bearing
5	6885.0606.018	Parallel key DIN 6885 6x6x18
6	100.02.01.100	Sanding shaft
7	6885.0606.040	Parallel key DIN 6885 6x6x40
8	100.02.04.105	Spacer ring
9	100.02.03.105	Slide ring
10	000.11.35.102	Shaft seal
11	200.40.00.100	Sanding drum 200 mm, new
	200.40.00.109	Sanding drum 200 mm, exchange. A credit note will only be issued if the aluminum body is undamaged!
	250.40.00.100	Sanding drum 250 mm, new
	250.40.00.109	Sanding drum 250 mm, exchange. A credit note will only be issued if the aluminum body is undamaged!
	300.40.00.100	Sanding drum 300 mm, new
	300.40.00.109	Sanding drum 300 mm, exchange. A credit note will only be issued if the aluminum body is undamaged!
12	100.02.06.100	Nut, left-hand thread
13	150.40.00.100	Centrifugal drum 200 mm
	300.41.00.100	Centrifugal drum 300 mm
20	0472.0052.000	Circlip DIN 472 52x2
21	6205.0025.205	Ball bearing
22	6885.0606.010	Parallel key DIN 6885 6x6x10
23	100.02.01.200	Sanding shaft
24	6885.0606.025	Parallel key DIN 6885 6x6x25
25	100.02.03.200	Spacer ring
26	000.11.40.102	Shaft seal
27	0988.0025.010	Washer DIN 988 25x35x1

ATTENTION: Please specify in inquiries and spare part orders always the serial numbers of your machines (→ *Section 3.1*)!

SPARE PARTS ELF

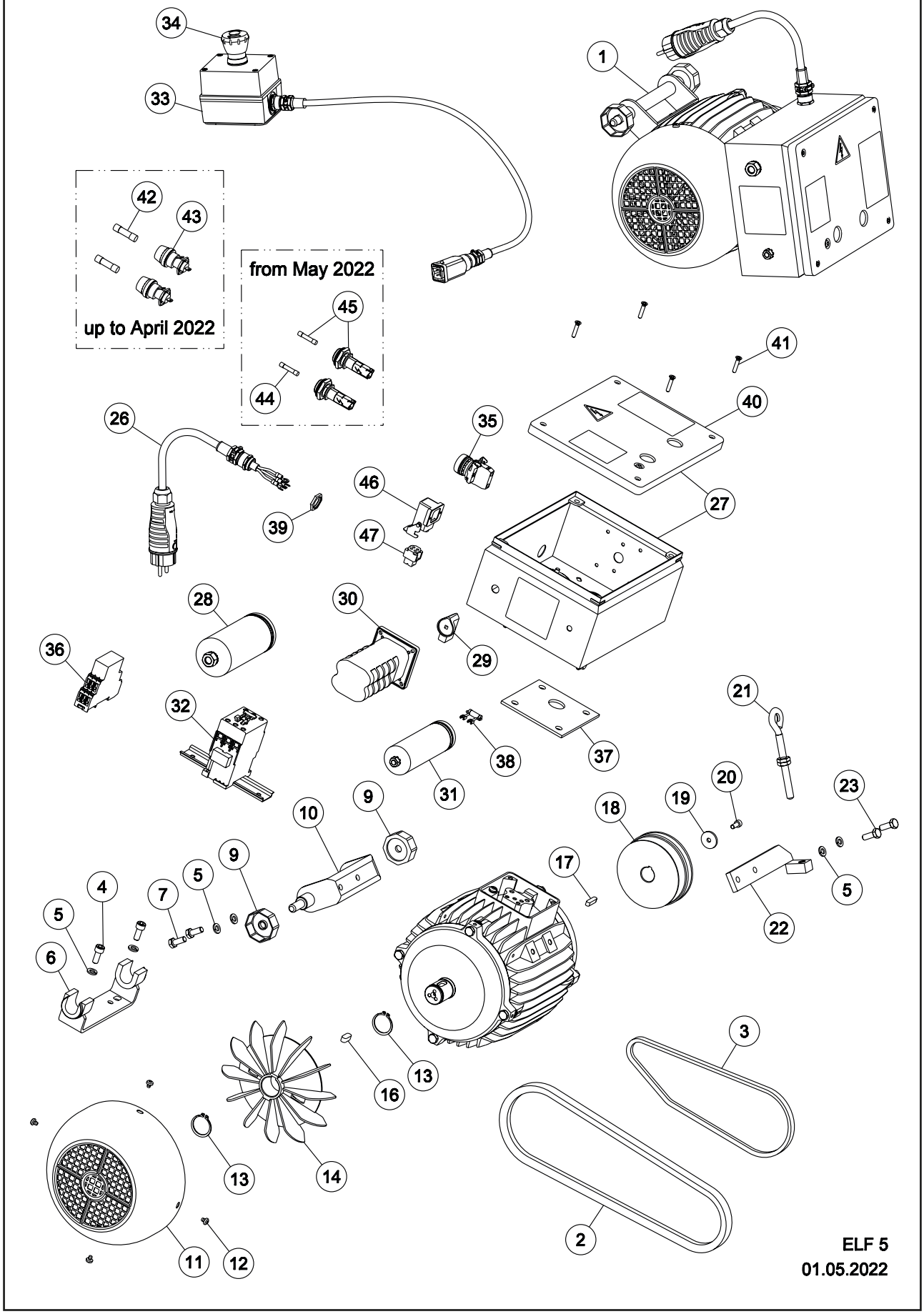


ATTENTION: Please specify in inquiries and spare part orders always the serial numbers of your machines (→ *Section 3.1*)!

Item	Part number	Description
1	100.65.00.100	Motor, 230 V / 50 CPS / 2.2 kW
	101.65.00.100	Motor, 230 V / 60 CPS / 2.2 kW
	102.65.00.100	Motor, 220 V / 60 CPS / 2.9 kW, USA
	105.65.00.100	Motor, 400 V / 50 CPS / 4.0 kW, three-phase current
2	000.70.17.092	V-belt
	000.70.17.093	V-belt (ELF with HONDA motor)
3	000.70.10.067	V-belt
4	0912.1008.020	Screw DIN 912 M8x20
5	0127.1008.000	Spring washer DIN 127 8 (M8)
6	100.65.29.200	Motor bearing bracket
7	0933.1008.018	Screw DIN 933 M8x18
9	100.65.30.100	Motor nut
10	100.65.25.100	Motor mounting
11	100.65.09.100	Fan cover
12	7500.1005.006	Screw DIN 7500 C M5x6
13	0471.0030.000	Circlip DIN 471 30x1.5
14	100.65.08.105	Fan wheel
16	6885.0807.020	Parallel key DIN 6885 8x7x20
17	6885.0606.025	Parallel key DIN 6885 6x6x25
18	100.65.06.100	Motor pulley
19	000.10.10.061	Washer
20	0912.1006.014	Screw DIN 912 M6x14
21	100.65.80.205	Eye bolt
22	100.65.35.100	Motor tensioner
23	0933.1008.022	Screw DIN 933 M8x22
26	100.65.75.100	Motor cable 3 x 2.5 mm² (for motor as from 2008)
	000.65.43.251	Motor cable 3 x 2.5 mm² (for motor until 2007)
	102.65.75.100	Motor cable 3 x 2.5 mm², USA (for motor as from 2008)
	000.65.43.257	Motor cable 3 x 2.5 mm², USA (for motor until 2007)
	105.65.75.100	Motor cable 5 x 1.5 mm² (for three-phase AC motor as from 2008)
	000.65.45.151	Motor cable 5 x 1.5 mm² (for three-phase AC motor until 2007)
27	100.65.40.200	Switch box for 230 V / 50 CPS
	102.65.40.200	Switch box for 220-230 V / 60 CPS + three-phase current
28	000.65.10.041	Running capacitor 40 µF
29	000.65.62.211	Switch button
30	000.65.60.253	Switch
	000.65.60.401	Switch for three-phase AC motor
31	000.65.10.061	Starting capacitor 60 µF
	000.65.10.131	Starting capacitor 130 µF, USA
32	000.65.20.035	Contactor
	000.65.20.032	Contactor complete for three-phase AC motor
33	102.65.60.200	Emergency switch USA, complete
34	000.65.62.221	Red button for emergency switch USA
35	000.65.25.020	Lamp red for three-phase AC motor
36	000.65.20.220	Relay for three-phase AC motor
37	100.65.14.105	Sealing plate
38	000.65.12.091	Discharging resistor
39	000.68.60.207	Nut (for motor as from 2008)
	000.68.60.163	Nut (for motor until 2007)
40	100.65.47.200	Cover with seal

ATTENTION: Please specify in inquiries and spare part orders always the serial numbers of your machines (→ *Section 3.1*)!

SPARE PARTS ELF

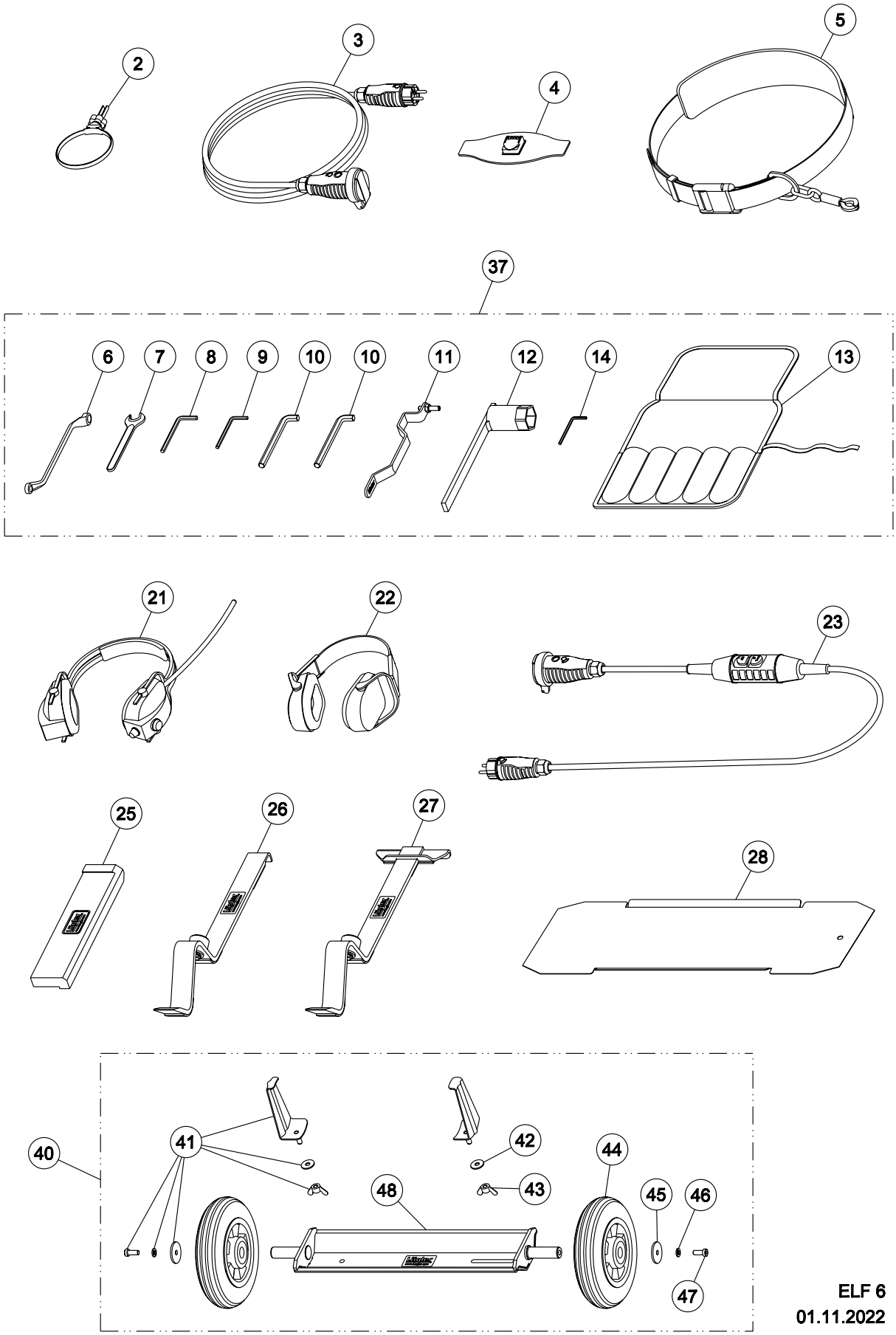


ATTENTION: Please specify in inquiries and spare part orders always the serial numbers of your machines (→ *Section 3.1*)!

Item	Part number	Description
41	7500.1005.825	Screw DIN 7500 M M5x25
42	000.65.80.063	Fuse (for motor until 04/2022)
43	000.65.82.012	Attachment for fuse (for motor until 04/2022)
44	000.65.80.065	Fuse (for motor as from 05/2022)
45	000.65.82.020	Conversion kit for fuse-holder (for motor as from 05/2022)
46	000.65.71.023	Mounting case
47	000.65.72.022	Jack insert

ATTENTION: Please specify in inquiries and spare part orders always the serial numbers of your machines (→ *Section 3.1*)!

SPARE PARTS ELF



ELF 6
01.11.2022

ATTENTION: Please specify in inquiries and spare part orders always the serial numbers of your machines (→ *Section 3.1*)!

SPARE PARTS ELF

Item	Part number	Description
2	000.01.40.110	MultiClip
3	000.65.53.251	Extension cable 3 x 2.5 mm², 10 m long
	000.65.53.252	Extension cable 3 x 2.5 mm², 20 m long
	000.65.55.151	Extension cable 5 x 1.5 mm², 10 m long, for three-phase AC motor
4	000.01.20.013	Respiratory protection mask FFP2
5	000.01.50.010	Safety belt
6	000.95.21.103	Closed mouth wrench 10/13 mm
7	000.95.11.171	Open mouth wrench 17 mm
8	000.93.11.061	Hexagonal socket screw wrench 6 mm
9	000.93.11.051	Hexagonal socket screw wrench 5 mm
10	000.93.11.101	Hexagonal socket screw wrench 10 mm
11	100.00.50.100	Setting fixture for wheels (for HUMMEL until 08/2022 + for ELF)
12	100.00.45.105	Box wrench
13	000.01.30.011	Tool bag, empty
14	000.93.11.041	Hexagonal socket screw wrench 4 mm
21	000.01.10.011	Foldable earmuff type MUSIMUFF with FM radio
22	000.01.10.021	Foldable earmuff type POCKET
23	000.01.65.020	Safety switch PRCD-S (for German mains supply)
25	701.10.00.100	Impact tool
26	702.00.00.200	Parquet layer tool ZUGEISEN, small
27	703.00.00.200	Parquet layer tool ZUGEISEN, broad
28	200.00.40.105	Template ELF 200
	250.00.40.105	Template ELF 250
	300.00.40.105	Template ELF 300
35	0125.1016.000	Washer DIN 125 17 (M16)
36	0471.0017.000	Circlip DIN 471 17x1
37	200.98.00.100	Tool bag, complete
40	720.00.00.300	Trolley TRANSCART, complete
41	720.10.00.300	Accessories TRANSCART (as from 2022)
	720.10.00.200	Accessories TRANSCART (until 2021)
42	0125.1008.000	Washer DIN 125 8.4 (M8)
43	0315.1008.000	Wing nut DIN 315 M8
44	850.05.19.105	Wheel (for SINGLE as from 2019, for TRANSCART as from 2022)
	720.05.00.205	Wheel TRANSCART (until 2021)
45	000.10.10.085	Washer
46	0127.1008.000	Spring washer DIN 127 8 (M8)
47	7984.1008.020	Screw DIN 7984 M8x20
48	720.01.00.300	Chassis TRANSCART (as from 2022)
	720.01.00.200	Chassis TRANSCART (until 2021)

ATTENTION: Please specify in inquiries and spare part orders always the serial numbers of your machines (→ *Section 3.1*)!

Service passport

Please enter the serial number and the year of manufacture of your machine (see type plate) on the rear side of these operating instructions! Otherwise the service passport will not be valid!

This service passport is a document. Make sure that all the tests and maintenance work carried out on the machine are confirmed by the servicing company here.

Date of test and maintenance work: ______ **Signature and company stamp**	**Date of test and maintenance work:** ______ **Signature and company stamp**	**Date of test and maintenance work:** ______ **Signature and company stamp**
Date of test and maintenance work: ______ **Signature and company stamp**	**Date of test and maintenance work:** ______ **Signature and company stamp**	**Date of test and maintenance work:** ______ **Signature and company stamp**
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Date of test and maintenance work: ______ **Signature and company stamp**	**Date of test and maintenance work:** ______ **Signature and company stamp**	**Date of test and maintenance work:** ______ **Signature and company stamp**

EC Declaration of conformity for machines (EC Directive 2006/42/EC)

The manufacturer **Eugen Lägler GmbH, Kappelrain 2, D-74363 Güglingen-Frauenzimmern, Germany**
Tel.: 0049 - 7135 - 98 90-0 · Fax: 0049 - 7135 - 98 90-98
E-Mail: info@laegler.com · www.laegler.com

certified herewith,
that the machine

Generic denomination:	**Floor sanding machine**
Function:	**Dry sanding of wooden floors**
Model:	**ELF**
Serial number:	**See type plate**
Commercial name:	**Drum sanding machine**

fulfils all the relevant provisions of the specified above European Directive.

The machine also fulfils all the relevant provisions of the European Directive **Electromagnetic Compatibility (2014/30/EU)**.

The following harmonized standards have been applied:

DIN EN ISO 12100: Safety of machinery - General principles for design - Risk assessment and risk reduction

DIN EN 60204-1: Safety of machinery - Electrical equipment of machines - Part 1

DIN EN 55014-1: Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 1

DIN EN 55014-2: Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 2

DIN EN 61000-3-2: Electromagnetic compatibility (EMC) - Part 3-2: Limits

DIN EN 61000-3-3: Electromagnetic compatibility (EMC) - Part 3-3: Limits

Technical file at: Eugen Lägler GmbH, Kappelrain 2
D-74363 Güglingen-Frauenzimmern
Germany

ELF **Serial number:** _____

Year of manufacture: _____