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Originalfassung
DE BETRIEBSANLEITUNG

BAUMSTUMPFFRÄSE

Übersetzung / Translation
EN USER MANUAL

STUMP GRINDER

ZI-BSF1500

EAN: 9120039235400

ACHTUNG: Öl kontrollieren!

ATTENTION: Check oil!

YOUR JOB. OUR TOOLS.

Edition: 19.03.2025 – Revision 00 – MaM – DE/EN

2 SICHERHEITSZEICHEN / SAFETY SIGNS

DE SICHERHEITSZEICHEN
BEDEUTUNG DER SYMBOLE

EN SAFETY SIGNS
DEFINITION OF SYMBOLS

DE **CE-KONFORM**: Dieses Produkt entspricht den EU-Richtlinien.

EN **EC-CONFORM**: This product complies with the EC-directives.

DE **BETRIEBSANLEITUNG LESEN!** Lesen Sie die Betriebs- und Wartungsanleitung Ihrer Maschine aufmerksam durch und machen Sie sich mit den Bedienelementen der Maschine gut vertraut, um die Maschine ordnungsgemäß zu bedienen und so Schäden an Mensch und Maschine vorzubeugen.

EN **READ THE MANUAL!** Read the user and maintenance carefully and get familiar with the controls in order to use the machine correctly and to avoid injuries and machine defects.

DE **WARNUNG!** Beachten Sie die Sicherheitssymbole! Die Nichtbeachtung der Vorschriften und Hinweise zum Einsatz der Maschine kann zu schweren Personenschäden und tödliche Gefahren mit sich bringen.

EN **ATTENTION!** Ignoring the safety signs and warnings applied on the machine as well as ignoring the security and operating instructions can cause serious injuries and even lead to death.

DE Schutzausrüstung tragen!

EN Wear protective equipment!

DE Keine offene Flamme! Feuer, offene Zündquelle und Rauchen verboten!

EN No open flame! Fire, open source of ignition and smoking prohibited!

D Verbrennungsgefahr!

EN Burn hazard!

DE Warnung vor feuergefährlichen Stoffen; nicht während des Betriebs befüllen.

EN Warning of flammable liquids; turn off the engine before filling (gasoline)

DE **Vergiftungsgefahr!** Nicht in Innenräumen und in der Nähe von offenen Fenstern und Belüftungen verwenden.

EN **Danger of Intoxication!** Only use outdoors and far from open windows and vents!

DE Warnung vor wegschleudernden Teile!

EN Warning against thrown-off items!

DE Warnung vor rotierenden Teilen!

EN Warning of rotating parts!

DE Die Hände und Füße nicht in die Nähe der rotierenden Messer geben.

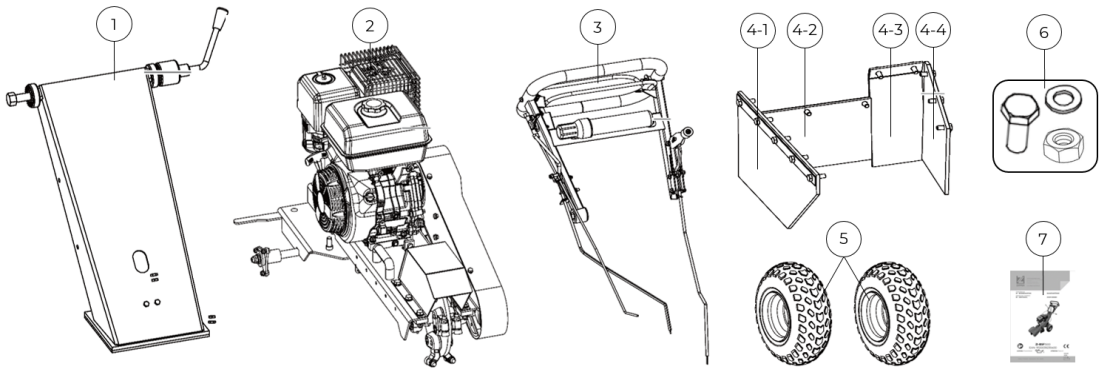
EN Blades in movement. Do not put hands or feet near or under the opening of the cutting plate.

DE **Warnschilder und/oder Aufkleber an der Maschine, die unleserlich sind oder entfernt wurden, sind umgehend zu erneuern.**

EN **Missing or non-readable security stickers have to be replaced immediately.**

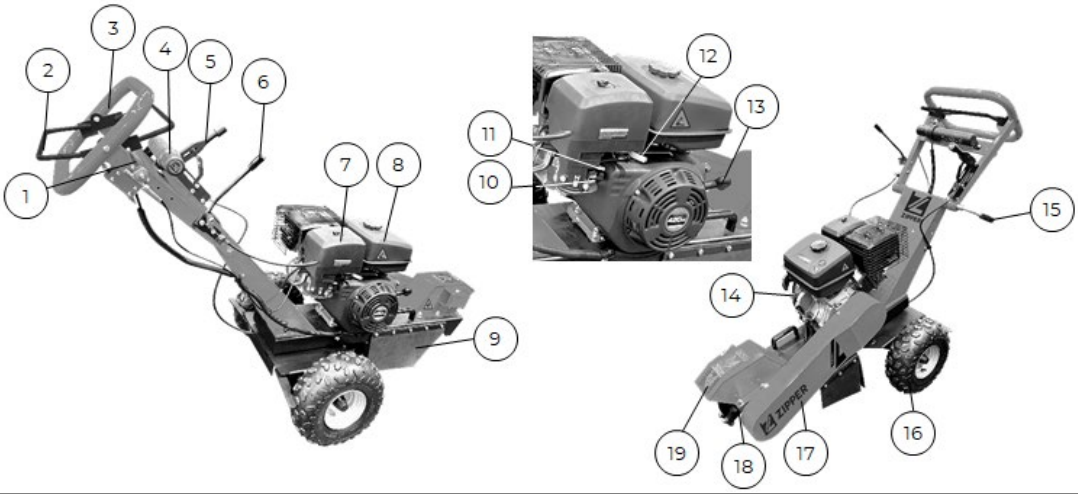
3 TECHNIK / TECHNICS

3.1 Lieferumfang / Delivery content



Nr	Bezeichnung / description	Qty	Nr	Bezeichnung / description	Qty
1	Unterer Rahmenteil/ lower steering device	**1**	**5**	Reifen / tyres	**2**
2	Maschinenbasis mit Motor und Fräseinheit / machine base with motor and grinding device	**1**	**6**	Befestigungsmaterial (Symbolfoto) / mounting material (symbolic foto)	**1 Set**
3	Oberer Rahmenteil / steering device	**1**	**7**	Betriebsanleitung / manual	**1**
4	Gummischutzmatten / rubber protection mat	**4**			

3.2 Komponenten / Components



Nr.	Bezeichnung / description	Nr.	Bezeichnung / description
1	Oberer Gashebel / upper throttle lever	**11**	Choke-Hebel / choke-lever
2	Sicherheitsbügel / safety bar	**12**	Unterer Gashebel / lower throttle lever
3	Handgriff / handle	**13**	Seilzugstarter / recoil starter
4	Behälter für Betriebsanleitung / manual holder	**14**	Ein-Aus-Schalter / On-Off-switch
5	Bremshebel / brake lever	**15**	Klemmhebel der Lenkvorrichtung / clamp handle steering device
6	Griff für Schwenkbewegung / handle for swivelling movement	**16**	Reifen / tyres
7	Luftfilter / air filter	**17**	Riemenabdeckung / belt cover
8	Kraftstofftank / fuel tank	**18**	Fräser / milling cutter
9	Gummischutz / rubber protection	**19**	Fräserschutz / milling cutter cover
10	Kraftstoffabsperrhahn / fuel shut-off valve		

3.3 Technische Daten / Technical data

	ZI-BSF1500
Motorleistung / engine power	9 kW
Motordrehzahl / engine speed	3600 min^{-1}
Motorhubraum / displacement	420 ccm
Kraftstoff / fuel	Benzin ROZ95 / gasoline RON95
Tankkapazität / tank capacity	6,5 l
empfohlenes Motoröl / recommended engine oil	15W40
Motoröl Füllmenge / engine oil capacity	1,1 l
Starter / starter	Seilzugstarter / recoil starter
Reifen / wheels	145/70-6 tubeless tyre
Reifendruck / wheel pressure	2,5 bar (0,25 MPa)
max. Neigung / max. slope	15°
Fräshöhe über Boden (Niveau) / cutting height above ground	600 mm
Fräshöhe unter Boden (Niveau) / cutting depth below ground	235 mm
Fräswerkzeug / milling cutter	
Fräserdurchmesser / milling cutter diameter	Ø 300 mm
Fräserdrehzahl / milling cutter speed	2500 min^{-1}
Fräsertype / milling cutter type	42CRMo / HRC40-42
Anzahl der Schneidzähne / quantity of cutting teeth	8
Fräserbreite / milling cutter thickness	12 mm
Allgemeine Daten / general data	
Maschinenmaße (L×B×H) / machine dimensions (L×W×H)	1755×750×1200 mm
Verpackungsmaße (L×B×H) / packaging dimensions (L×W×H)	1150×770×740 mm
Gewicht netto / weight net	120 kg
Gewicht brutto / weight gross	145 kg
Garantierter Schallleistungspegel L_{WA} / guaranteed sound power level L_{WA}	103 dB

(DE) Hinweis Geräuschangaben: Die angegebenen Werte sind Emissionswerte und müssen damit nicht zugleich auch sichere Arbeitsplatzwerte darstellen. Obwohl es eine Korrelation zwischen Emissions- und Immissionspegeln gibt, kann daraus nicht zuverlässig abgeleitet werden, ob zusätzliche Vorsichtsmaßnahmen notwendig sind oder nicht. Faktoren, welche den am Arbeitsplatz tatsächlich vorhandenen Immissionspegel beeinflussen, beinhalten die Eigenart des Arbeitsraumes und andere Geräuschquellen, d. h. die Zahl der Maschinen und anderer benachbarter Arbeitsvorgänge. Die zulässigen Arbeitsplatzwerte können ebenso von Land zu Land variieren. Diese Information soll jedoch den Anwender befähigen, eine bessere Abschätzung von Gefährdung und Risiko vorzunehmen.

(EN) Notice noise emission: The values given are emission values and therefore do not have to represent safe workplace values at the same time. Although there is a correlation between emission and immission levels, it cannot be reliably deduced whether additional precautions are necessary or not. Factors influencing the actual immission level at the workplace include the nature of the workspace and other noise sources, i.e. the number of machines and other adjacent operations. The permissible workplace values may also vary from country to country. However, this information should enable the user to make a better assessment of hazard and risk.

11 PREFACE (EN)

Dear Customer!

This manual contains information and important notes for safe commissioning and handling of the STUMP GRINDER ZI-BSF1500 hereinafter referred to as “machine” in this document.

This manual is part of the machine and must not be removed. Save it for later reference and if you let other people use the machine, add this manual to the machine.

Please read and note the safety instructions!
Before first use read this manual carefully. It eases the correct use of the machine and prevents misunderstanding and damages of machine.

Due to constant advancements in product design, construction, illustrations and contents may deviate slightly. If you notice any errors, please inform us.
We reserve the right to make technical changes!

Check the goods immediately after receipt and note any complaints on the consignment note when taking over the goods from the deliverer!
Transport damage must be reported to us separately to us within 24 hours.
ZIPPER MASCHINEN GmbH cannot accept any liability for transport damage that has not been reported.

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12 SAFETY

This section contains information and important notes on the safe commissioning and handling of the machine.

For your safety, read this manual carefully before commissioning. This will enable you to handle the machine safely and thus prevent misunderstandings as well as personal injury and damage to property. Pay special attention to the symbols and pictograms used on the machine as well as the safety information and danger warnings!

12.1 Intended use of the machine

The machine is designed exclusively for the following activities:
For grinding off tree stumps and exposed root systems close to the ground within the technical limits.

NOTE

ZIPPER MASCHINEN GmbH assumes no responsibility or warranty for any other use or use beyond this and for any resulting damage to property or injury.

12.1.1 Technical restrictions

The machine is designed for the work under the following conditions:

Relative humidity	max. 70 %
Temperature (operation)	+5 °C to +40 °C
Temperature (storage)	-25 °C to +55 °C

12.1.2 Prohibited applications / Dangerous misuse

- Operating the machine without adequate physical and mental fitness.
- Operating the machine without knowledge of the manual.
- Operating the machine on slopes greater than 15°.
- Operating the machine on wet, slippery surfaces.
- Operating the machine indoors, in garages or sheds.
- Operating the machine after dark.
- Modifying the machine design.
- Operating the machine in a potentially explosive environment.
- Operating the machine outside the technical limits specified in this manual.
- Removing of the safety markings attached to the machine.
- Modifying, circumventing or disabling the safety devices of the machine.

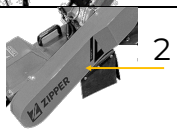
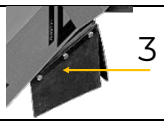
The non-intended use or the disregard of the explanations and instructions described in this manual will result in the expiration of all warranty claims and compensation claims for damages against ZIPPER MASCHINEN GmbH.

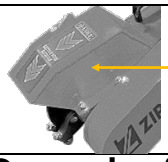
12.2 User requirements

The machine is designed to be operated by one person. The prerequisites for operating the machine are physical and mental fitness as well as knowledge and understanding of the operating instructions. Persons who, due to their physical, sensory or mental capabilities, inexperience or lack of knowledge, are unable to operate the machine safely must not use the machine without supervision or instruction by a responsible person.
Please note that locally applicable laws and regulations determine the minimum age of the operator and may restrict the use of this machine!
Put on your personal protective equipment before working on the machine.

12.3 Safety devices

The machine is equipped with the following safety device:

	• Safety bar (1): As soon as the safety bar is released during milling, the milling machine stops moving.
	• Separating protective device from the belt drive (2)
	• Side rubber protection mats (3) as splash protection

	• Front cover as cutter protection (4)

12.4 General safety instructions

To avoid malfunctions, damage and health impairments when working with the machine, the following points must be observed in addition to the general rules for safe working:

- Check the machine for completeness and function before starting. Only use the machine if the separating and other non-separating protective devices required for machining have are fitted.
- Make sure that the guards are in good working order and properly maintained.
- Ensure sufficient space around the machine.
- Keep the area around the machine free of obstacles (e.g. dust, chips, cut-off workpiece parts, etc.).
- Ensure that you are standing securely.
- Check the machine's connections for strength before each use.
- Never leave the machine running unattended. Switch off the machine before leaving the work area and secure it against unintentional or unauthorised restarting.
- The machine may only be operated, maintained or repaired by persons who are familiar and who have been informed about the dangers arising from this work.
- Ensure that unauthorized persons keep a safety distance (min. 25 m) from the machine and keep children away from the machine.
- Always work with care and the necessary caution and never use excessive force.
- Do not overload the machine.
- Hide long hair under hair protection.
- Wear close fitting protective work clothing and suitable protective equipment (eye protection, face protection, ear protection).
- Never wear loose jewellery, loose clothing or accessories (e.g. tie, scarf).
- Do not work on the machine if you are tired, not concentrated or under the influence of medication, alcohol or drugs!
- Do not use the machine in areas where vapours of paints, solvents or flammable liquids represent a potential danger (danger of fire or explosion!).
- Shut down the machine before carrying out adjustment, conversion, cleaning, maintenance or servicing work, etc. Before starting work on the machine, wait until all tools and machine parts have come to a complete standstill and secure the machine against unintentional restarting.

12.5 Special safety instructions for this machine

- Only work on terrain with slopes of up to max. 15°.
- Ensure that there are no stones, wires, toys or similar objects in the working area. These objects can get caught during milling.
- Protect cars, windows and other objects within 25 m from flying debris.
- Only operate the machine outdoors.
- Ensure that there is sufficient air flow to guarantee cooling of the engine and milling cutter.
- Keep the engine area free of deposits.
- The exhaust fumes from the engine can be extremely hot and cause fires. Keep away from flammable objects.
- Transport the machine in an upright position to prevent the fuel from running out.
- Only work in sufficient daylight.

Safety instructions for machines with combustion engine

- Do not touch the engine and/or muffler during operation or immediately after switching off! These areas become hot during operation and can cause burns.
- Do not touch the spark plug connector when the engine is running (electric shock!).
- Do not operate the machine in closed areas or in poorly ventilated rooms unless there is adequate ventilation through exhaust fans or hoses (Risk of suffocation from carbon monoxide!).
- Do not smoke while the machine is in operation.
- Do not smoke when refuelling the machine.
- Refuel the machine only in a well ventilated area.
- Do not refuel the machine when the engine is running or the machine is still hot.
- Do not refuel the machine near naked flames.
- Do not spill fuel when refuelling.
- Do not crank a gas flooded engine as long as the spark plug is removed- fuel in the cylinder sprays out of the spark plug opening.

- Do not carry out an ignition spark test on engines if the engine is flooded or gas can be smelled. A stray spark could ignite the vapours.
- Do not use fuel or other types of fuel or flammable solutions to clean the machine parts, especially indoors. The vapours of fuels and solutions may explode.
- Always keep the area around the muffler free of foreign substances such as leaves, paper, cardboard, etc. A hot muffler could ignite these substances and cause a fire.
- Close the fuel filler cap after refuelling.
- Check the fuel line and tank regularly for leaks and cracks. Do not operate the machine if leaks in the fuel system are known.
- Store fuel only in designated and approved containers.

12.6 Hazard warnings

12.6.1 Residual risks

Despite intended use, certain residual risk factors remain.

Risk of injury

Keep hands and feet away from moving machine parts. Body parts or clothing can become caught in moving machine parts and cause injuries.
Risk of slipping due to damp surfaces or slopes.

Risk of burns

Touching the exhaust and other machine components can cause severe burns after prolonged continuous operation or when the engine is hot.

Fire and explosion hazards

Gasoline is highly flammable and explosive under certain conditions.
NEVER add fuel or engine oil while the machine is running or hot.
When refuelling and in places where fuel is stored, do not smoke and keep away from naked flames or sparks.
Do not overfill the fuel tank and avoid spilling fuel when refuelling. If gasoline has been spilled, make absolutely sure that this area is completely dry/clean before starting the engine.
Make sure that the fuel filler cap is properly closed after refuelling.

Chemical hazards

Never operate or refuel a gasoline or diesel engine in a sealed area without adequate ventilation.
Carbon monoxide exhaust fumes from the internal drive units of the combustion engine can cause damage to health and death if inhaled in confined spaces. Therefore, only operate the machine in well-ventilated rooms or outdoors.
Liquid fuels can cause serious damage to the skin and the environment.

Hearing damage

Prolonged exposure in the immediate vicinity of a running machine can cause hearing damage.
Use hearing protection!

Kickback

Significant kickback can occur, particularly on initial contact with the tree stump.

Vibrations

If the machine is used for long periods of time, the vibrations can cause injuries. Take breaks.

12.6.2 Hazardous situations

Due to the structure and construction of the machine, hazardous situations may occur which are identified in this manual as follows:

DANGER
 A safety instruction designed in this way indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

WARNING
 A safety instruction designed in this way indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

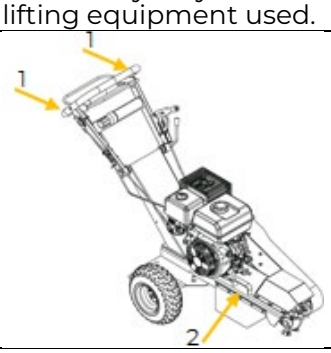
CAUTION
 A safety instruction designed in this way indicates a possibly hazardous situation which, if not avoided, may result in minor or moderate injury.

NOTE
 A safety notice designed in this way indicates a potentially hazardous situation which, if not avoided, may result in property damage.

Regardless of all safety regulations, your common sense and your appropriate technical aptitude/training are and remain the most important safety factor in the error-free operation of the machine. **Safe working depends on you!**

13 TRANSPORT

To manoeuvre the machine in the packaging, a pallet truck or forklift truck with the appropriate lifting force and a fork length of at least 1200 mm can be used, for example. The specifications can be found in the chapter Technical data. To ensure proper transport, follow the instructions and information on the transport packaging regarding the center of gravity, lifting points, weight, means of transport to be used and prescribed transport position, etc. Ensure that the selected lifting equipment (crane, forklift, lift truck, load slinging equipment, etc.) is in perfect condition. The machine may only be lifted and transported by qualified personnel with appropriate training for the lifting equipment used.



- To lift the machine, attach the lifting gear to the lifting points (1).
- For longer transport, attach the machine to the handle provided (2).

WARNING

Risk of injury from suspended or unsecured load!
Damaged or insufficiently strong hoists and load slings can result in serious injury or even death.

→ Before use, therefore, check hoists and load slings for adequate load-bearing capacity and perfect condition. Secure the loads carefully. Never stand under suspended loads!

14 ASSEMBLY

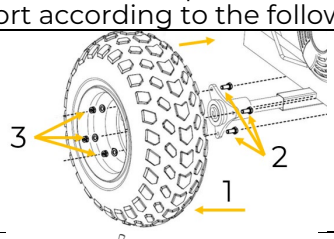
14.1 Preparation

14.1.1 Check delivery content

Check the delivery immediately for transport damage and missing parts. Report any damage or missing parts to your dealer or the shipping company immediately. Visible transport damage must also be noted immediately on the delivery note in accordance with the provisions of the warranty, otherwise the goods are deemed to have been properly accepted.

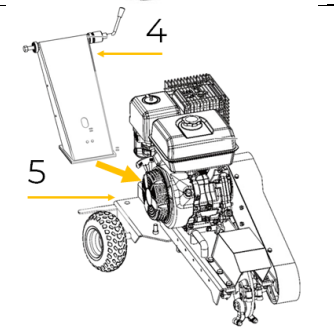
14.2 Assemble

The machine comes pre-assembled, it is necessary to assemble the components dismantled for transport according to the following instructions and to make the electrical connection.



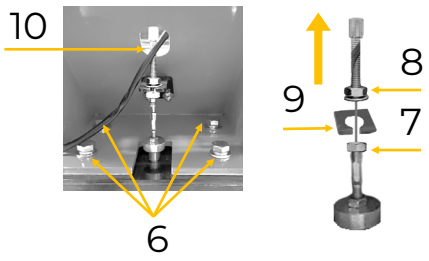
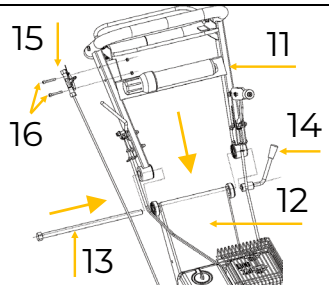
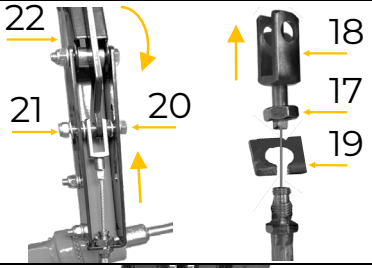
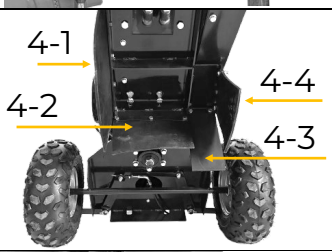
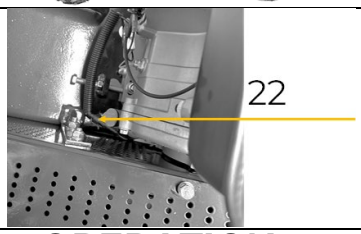
1. Mount tyres

- Fasten both wheels (1) (left and right side) to the axle using hexagon bolts M8×20 (2) with washers and lock nuts M8 (3).



2. Install the lower steering device

- Place the lower steering device (3) on the back of the machine base and mount it to the machine base using the provided holes.

	**3. Screwing and connection** • Steering device with 4 hexagon screws M12×45 (6) including washers and nuts. **NOTE:** Make sure that the throttle cable is first inserted through the recess (10) in the steering device. • Mount the throttle cable on the inner bracket of the steering device • Unscrew the nut (7) and slide it down • Now pull on the gas cable (8) so that you can insert the cable into the recess (9) of the bracket • Release the throttle cable and tighten it with nut (x) and tighten it with nut (x)
	**4. Install the upper steering device** • Connect the upper steering device (11) to the lower steering device (12) with hexagon screw M16×360 (13) and fix it with the clamping lever (14). • Fix the throttle lever (15) to the upper steering device with 2 hexagon screws M6×40 with elastic and flat washers and lock nuts M6 (16).
	**5. Install the brake cable** • Unscrew the lock nut (17) and pull the coupling (18) upwards to insert the brake cable into the opening (19) of the brake unit. • Then screw the lock nut (17) back on. • Push the brake lever (22) down to connect the clutch to the clutch mechanism. • Finally, fix with screw (20) and nut (21) throug the clutch
	**6. Install rubber protective mats** • Secure the rubber protective mats to the underside of the machine as shown using the M8×25 hex bolts, M8 lock nuts, and washers. (Numbering of the mats is as per the scope of delivery)
	**7. Connect the safety switch plug** • Connect the safety switch plug (22) to the handle. **NOTE:** When laying the cable, make sure that it cannot be crushed during the swivel movement of the milling unit.

15 OPERATION

Only operate the machine when it is in a perfect condition. Before each operation, a visual inspection of the machine must be carried out. Safety devices and operating elements must be checked carefully. Check screw connections for damage and tight fit.

15.1 Operating instructions

- Check the fuel system regularly. Check for wear, leaks, loose or missing fuel hoses and shut-off valves. Repair or replace defective parts.
- Check that the machine is in perfect condition. Damaged or missing parts must be replaced or repaired immediately.
- The running engine emits carbon monoxide, which is odorless and tasteless and can lead to unconsciousness. Avoid inhaling the exhaust fumes.
- Never pull the starter handle when the engine is running. This damages the engine.
- Never work near sources of sparks or flames. Never smoke near the running machine.
- Keep hands, feet and clothing away from moving machine parts (drive belts, milling cutters, etc.).
- Be aware of possible kickback when coming into contact with the stump.
- Only work when there is sufficient daylight.

15.2 Information on Initial Start-up

NOTE

Note that the machine is delivered without fuel. Make sure that this equipment is filled up before the machine is put into operation for the first time.
ATTENTION: The machine does not start until the engine oil has been refilled to the upper limit.

15.2.1 16.1.1 Test Run Initial Start-up

- Let the machine run idle for about 3 minutes.
- Pay attention to abnormal noises.
- Pay attention to the exhaust fumes (too black, too white)?

15.2.2 Notes on the first 20 operating hours

In order to optimize the life expectancy of your machine, the following points should be observed:

- Do not operate the engine for the first 20 operating hours @ maximum load (this also applies to used engines after extensive maintenance). This means lower speed and lower maximum working load than during normal operation.
- Change the engine oil after the first 20 hours of operation.

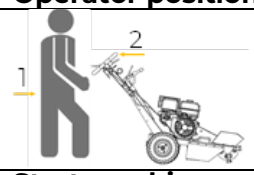
15.3 Checklist before commissioning

Check before start-up

- the work area and remove loose objects or objects,
- the engine oil level,
- the amount of fuel in the tank,
- whether the tank cap is tightly closed,
- the fuel lines for leaks and wear,
- whether the milling tool is firmly mounted,
- the tires for a firm fit and mobility,
- the tire pressure,
- whether the steering device is fixed,
- whether all machine covers are firmly installed.

15.4 Handling

15.4.1 Operator position

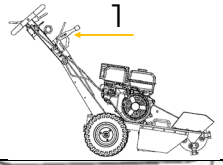


- The operator position is located at the rear of the machine (1)
- The steering device and control lever (2) must be always within reach during operation.

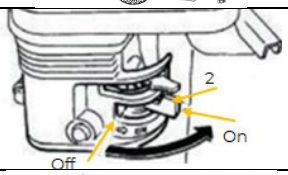
15.4.2 Start machine

WARNING

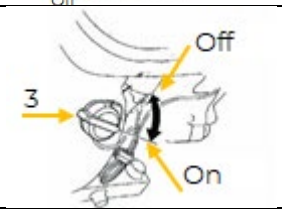
Risk of injury from flying parts!
Loose objects (stones, roots, wires, etc.) can get caught in the machine and fly out of the machine approx. 25 m in any direction. They can also bounce off solid objects and injure bystanders or cause damage to property.
→ Remove loose objects from the work area!
→ Remove bystanders from the danger area!
→ Work with great care!



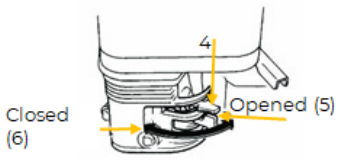
1. Position the machine upright and lock the brake (1).



2. Turn the fuel shut-off valve (2) to the “On” position.

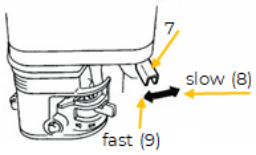


3. Also turn the engine On-Off switch (3) (ignition switch) to the “On” position.

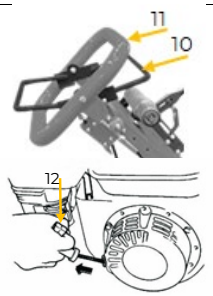


NOTE: The “Closed” position of the choke lever (6) enriches the fuel mixture for starting a cold engine.
The “Open” position (5) provides the correct fuel mixture for normal operation after starting and for restarting a warm engine.

4. Move the choke lever (4) to the “Closed” position (6), only for a cold engine.



5. Set the throttle lever (7) to the idle position between the “slow” position(8).



6. Grasp the safety bar (10) and the handle (11) with your left hand.

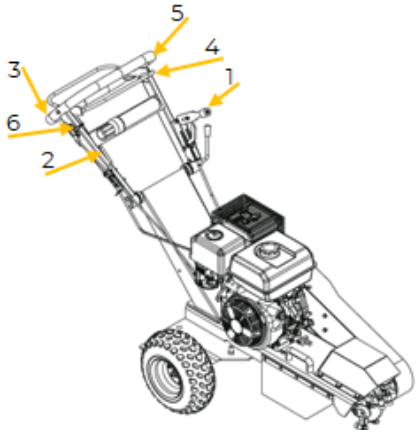
7. Grasp the starter handle (12) and pull it out slowly. The resistance is strongest at a certain point. This point corresponds to the compression point. Let the rope roll back a little from this point and then pull it out forcefully.
NOTE: Do not pull the starter rope all the way to the end and do not let it rewind after pulling, but only rewind it quickly.

8. Move the choke lever to “Open” (5) when the engine is running.

15.4.3 Grind tree stump

WARNING

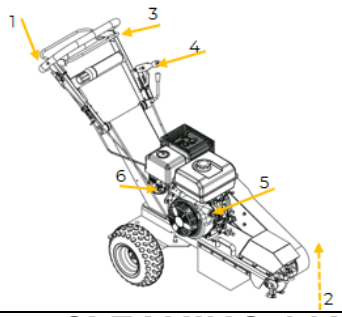
Rotating grinding tool!
Risk of injury due to sharp cutting wheel. Contact with rotating parts of the grinding tool can lead to serious injuries!
→ Keep hands and feet away from the grinding tool!



- Bring the machine to the start of the tree stump (to do this, release the brake and bring it closer).
- Then activate the brake again (1).
- The milling tool can be moved sideways by releasing the handle (2) (this allows the milling head to swivel to the left and right, the machine (wheels) remain in the selected parking position.
- Press the handle (3) down to lift the milling tool off the ground.
- Start the machine
- Turn the throttle lever (6) downwards to engage the centrifugal clutch (to the fast-position). The milling tool starts to rotate.
- Swivel the cutter to the side of the tree stump and guide it straight into the tree stump with light pressure. As soon as you penetrate the tree stump, swivel to the side until you reach the edge of the tree stump. Change direction and swing back in the other direction until you feel the cutter reach the other edge of the tree stump.
- Pay attention to the engine noise and accelerate sufficiently.
- If the belt or clutch squeaks, you are overloading the machine. Reduce the load (lower feed rate / slower lateral swing or reduce the penetration depth.
- If you cannot move the machine sideways, lift it slightly.
- You can cut solid roots with the machine by driving directly through them.
- When shredding larger stumps, shavings can collect under the tires to remove them, proceed as follows:
  - Release the brake (2) and pull the machine towards you so that the pile of chips is directly under the cutting wheel.
  - Place the cutting wheel on the chip pile. The material is discharged from the machine area.

	• For large stumps, do not drop the cutting tool into the stump hole. If a hole obstructs the work, fill it with chips or change position. • If you change position, lock the brake again before you start milling.

15.4.4 Stop machine

	• Press the handle down (1) to keep the milling tool off the ground (2). • Release the safety bar (3). The engine is switched off. • Wait until the engine comes to a complete stop. • Lower the milling tool so that it rests on the ground. • Ensure that the brake is applied (4) to prevent unintentional movement of the machine. • Set the on/off switch to “OFF” (5). • Allow the engine to cool down for at least 30 minutes before transporting the machine. • Close the fuel shut-off valve (6).

16 CLEANING, MAINTENANCE, STORAGE, DISPOSAL

WARNING

Risk of injury!
Always switch off the engine before cleaning, maintenance and repair work and secure the machine against unintentional switching on by removing the spark plug.
→ Allow the engine to cool down.
→ Take particular care when working on the milling tool!

16.1 Cleaning

Regular cleaning guarantees the long service life of your machine and is a prerequisite for its safe operation.

NOTE

Incorrect cleaning products can attack the finish of the machine. Do not use any solvents, nitro thinners or other cleaning products that could damage the machine's finish.
Observe the specifications and instructions of the cleaning agent manufacturer.

- After each use, remove dust and dirt particles from the machine, especially from the guards, air slots and engine housing and belt guard.
- Clean the machine with a damp cloth and, if necessary, some commercial detergent or blow it out with compressed air at low pressure.

16.2 Maintenance

The machine is low-maintenance and only a few parts need to be serviced. Malfunctions or defects that could affect your safety must be repaired immediately!

- Before each operation, check the perfect condition of the safety devices.
- Regularly check the perfect and legible condition of the warning and safety labels of the machine.
- Use only original spare parts recommended by the manufacturer.

16.2.1 Maintenance plan

The type and degree of machine wear depends to a large extent on the operating conditions. The following intervals apply when the machine is used within the technical limits:

Interval	Components	Action
before usage	• screws	• tighten if necessary or replace if lost
	• oil level • fuel level	• Check, top up if necessary.
	• fuel system	• Check fuel lines, connections and hose clamps for leaks and damage. Repair/replace if necessary.
	• brake system	• Check and adjust, if necessary.
	• grinding tool	• Check blade sharpness; change if necessary
	• safety device	• Check function
	• tyres	• Check mobility and tyre pressure
every 20 operating hours	• bearing of the measuring shafts	• Lubricate with grease, type NLGI #2
	• belt	• Check belt tension, tighten or replace if necessary.
if necessary	• air filter • spark plug	• clean or change

16.2.2 Check / fill fuel

Use only fuel-approved containers for transport and storage. Place the container on the ground and fill it with fuel from the pump to minimize static. Never fill the machine with fuel directly at the fuel pump.

WARNING

Fire and explosion hazard due to gasoline!
Petrol is highly flammable and explosive. Heat, sparks and flames can ignite gasoline vapors, which can spread during refuelling. This can result in a flash fire and/or explosion, which can lead to serious injury or death.

→ Keep away from naked flames, sparks and heat sources!
→ Only refuel outdoors!
→ Clean up spilled fuel or splashes immediately.

- Switch off the engine and allow it to cool down for at least 2 minutes.
- Remove the fuel filler cap (1).
- Pour fuel from the transport container into the filler opening.

NOTE: Only use transport containers approved for fuel.

- Only fill the tank with fuel up to approx. 3 cm below the rim.
- Close the fuel filler cap (1).

If fuel has been spilled:

- Wipe the filler opening with rags.
- Wait 5 minutes until the fuel has evaporated before starting the machine.
- Rags soaked with fuel are flammable and must be disposed of properly.

NOTE: Change clothing contaminated with fuel immediately and wash your skin.

NOTE

Observe the safety instructions when filling and storing the transport container for the fuel!

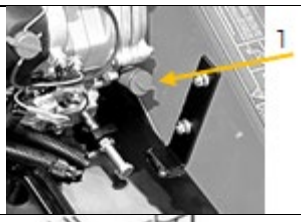
16.2.3 Check / change engine oil

NOTE

A too low oil level will cause damage to the engine and shorten the service life of the machine. Therefore, check the motor oil level before every start and if necessary fill up with oil.

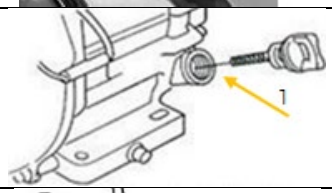
NOTE

Waste oils are toxic and must not be released into the environment! Follow the manufacturer's instructions and, if necessary, contact your local authorities for information on proper disposal.

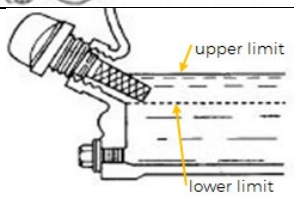


Checking the fill lever

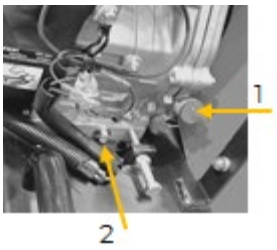
- To check the engine oil level, park the machine on a safe, level surface. Switch off the engine and allow the machine to stand for ten minutes so that the circulating oil can collect in the oil pan.
- Unscrew the oil dipstick (1) and wipe with a clean, lint-free cloth or a lint-free paper towel.



- Push the measuring rod back into the opening as far as it will go, but do not screw it in (1). (Make sure that the rod is really pushed in all the way - sometimes it can get jammed).



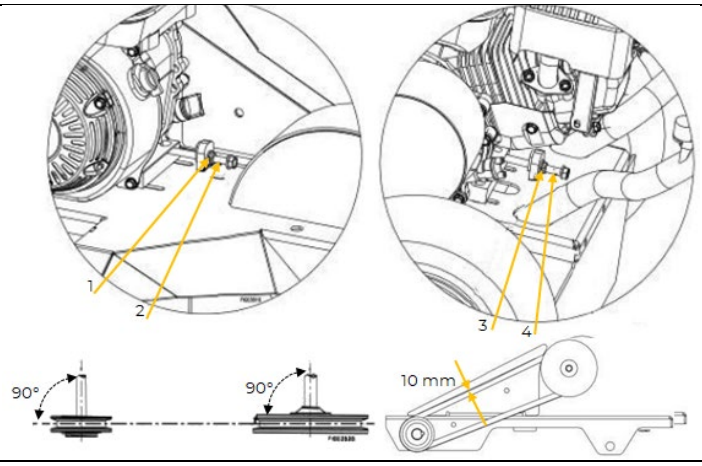
- Pull the oil dipstick out again and read the oil level. There are two markings for this.
- If the oil level is low, top up with the recommended oil up to the upper edge.
- Push the oil dipstick back in and tighten.



Changing the engine oil
- Remove the oil dipstick from the filler opening (1).
- Remove the oil drain plug (2) and allow the engine oil to drain into a collection container.
- Close the oil drain plug (2).
- Fill the engine oil into the filler opening (1).
- Close the filler opening (1).
- Dispose of the used oil in an environmentally friendly manner.

16.2.4 Adjust / replace drive belt

Loose or worn V-belts reduce the efficiency of power transmission, result in poor compaction performance and shorten the service life of the belt itself. Therefore, check the V-belt tension at the prescribed intervals.



Tension
- Remove the belt guard.
- Loosen the 4 screws on the engine base.
- Loosen the locks nut (1, 3) on the tensioning and alignment bolts.
- Turn the tensioning screw (2)
  - clockwise to increase the belt tension,
  - counter clockwise to reduce the belt tension.
- Check the alignment of the pulleys, adjust with the alignment screw (4) if necessary.

NOTE: The belt tension is correct if you use your thumb to bend the belt in the middle by 10 mm.
- Tighten the nuts and bolts again
- Fit the belt guard.

Replace
- Remove the belt guard.
- Loosen the 4 screws on the engine base.
- Move the engine so that the drive belt becomes slack.
- Remove the drive belt and insert a new drive belt.
- Ensure that the running directions of the drive belt and the machine match. You will find an arrow on the inside of the drive belt and on the machine.
- Tension the drive belt by moving the engine.
- Check the belt tension and adjust it if necessary, see above.
- Finally, retighten all nuts and bolts.
- Fit the belt guard.

16.2.5 Checking the clutch

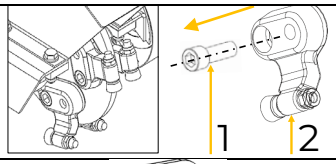
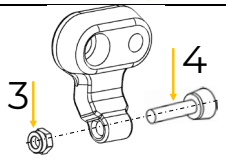
Check the clutch at the same time as the V-belt. With the belt removed, visually check the outside for seizure and the "V" groove for wear and damage. Clean the V-groove as required. If the clutch shoe is worn, the power transmission becomes insufficient.

16.2.6 Change cutting teeth

Worn cutting teeth reduce the performance enormously. Check the condition of the cutting teeth regularly and replace them as follows.

WARNING

Risk of injury from sharp knives!
→ Always wear cut protection gloves when handling the cutting blade Risk of injury!

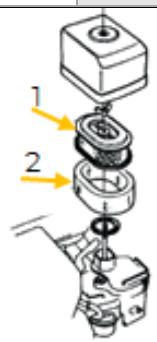
	• Loosen the screws (1) from the cutting tooth (2) to remove it from the milling head
	• Unscrew the lock nut (3). • Remove the cutting insert (4), replace it with a new one, and screw it back on. • Then screw the cutting tooth back onto the milling head **NOTE:** Tightening torque is 86 NM

16.2.7 Clean / replace the air filter

NOTE

A dirty air filter can contribute to problems starting the machine, loss of power during operation and shorten engine life.

➢ *Zipper Maschinen accepts no liability for engine damage resulting from failure to regularly clean the air filter.*

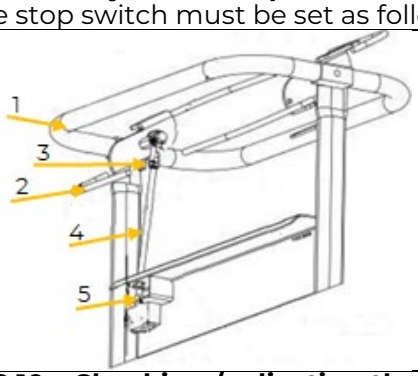
	• To clean the air filter, first loosen the wing nut on the air filter housing, remove the cover (foam filter element (2)) and remove the air filter cassette (paper filter element (1)). Clean both elements mechanically with a soft brush. • If only the air filter cassette is to be cleaned, blow a dry jet of compressed air from the inside against the filter until all dust has been removed. An air filter change is necessary when: - The engine power drops and the fuel consumption increases at the same time, - the oil consumption increases, - the starting of the engine becomes more difficult.

16.2.8 Clean / replace the spark plug

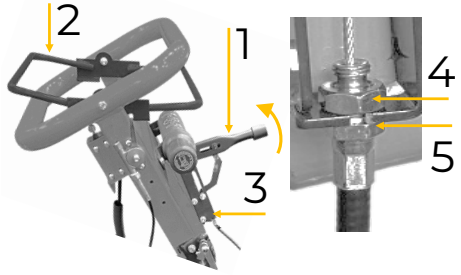
1. Pull out the spark plug cap and remove impurities from the outside of the spark plug.
2. Unscrew the spark plug using the spark plug wrench.
3. Check the ceramic insulation, clean the electrodes (metal tips) and check the distance between the contacts. It should be 0.7 to 0.8 mm.
4. Reinstall the cleaned (or replaced) spark plug and replace the spark plug cap.

16.2.9 Adjust the stop switch

The stop switch must be set as follows after a change:

	• Loosen the hexagon nut (3). • For the correct distance, hold the safety bar (2) and the handle (1) together and lower the rod (4) onto the switch button (5) until it can no longer be pressed. • Turn the rod - clockwise to lower it, - anti-clockwise to raise. • Then raise the rod (4) by one turn (anticlockwise). • Tighten the hexagon nut (3). • Check the setting by releasing the safety bar (2). A “click” sound indicates correct adjustment.

16.2.10 Checking / adjusting the brake system

	**Check** • Pull the brake (1) and push the handlebar down (2) so that the milling tool is lifted off the ground. **NOTE:** The tyres must be locked in this position. If a tyre rotates, adjust the brake as follows at the brake lever (3). **Adjust** • Remove the adjusting screw (4). • Turn the rotary knob (5) - clockwise to increase the tension, - counterclockwise to reduce the tension. • Fix this position with the adjusting screw (4).

16.3 Storage

Store the cleaned machine in a dry, frost-proof, well-ventilated and lockable place when not in use. Make sure the storage location is away from heat sources, flames and sparks. Make sure that unauthorised persons and especially children do not have access to the machine.

- Allow the engine to cool down.
- Close the fuel supply valve.
- Remove the spark plug to prevent untrained persons from starting the machine.
- Clean the machine.
- Ensure that the machine is not stored near heat sources, naked flames or sparks.
- Loosen the steering device clamping lever and fold the steering device over.
- Cover the machine.

Short-term storage

- Start the machine at regular intervals (every 4 weeks) to dry out any accumulated moisture.

Longer storage

- Remove all fuel from the machine and store it properly.

OR

- Add fuel stabilizer to the full tank.
- Run the engine for at least 10 minutes to distribute the fuel stabilizer throughout the fuel system.
- Stop the engine.
- Remove the spark plugs.
- Pour 5 ml oil through the spark plug hole.
- Close the spark plug hole with a rag and pull the starter handle a few times to lubricate the combustion chamber.
- Replace the spark plug but do not connect it.

NOTE

Improper storage can damage and destroy important components. Only store packed or already unpacked parts under the intended ambient conditions!

16.4 Disposal

Observe the national waste disposal regulations. Never dispose of the machine, machine components or operating equipment in the residual waste. If necessary, contact your local authorities for information regarding available disposal options.
If you purchase a new machine or equivalent equipment from your specialist dealer, he is obliged in certain countries to dispose of your old machine properly.

17 TROUBLESHOOTING

If you are unable to carry out the necessary repairs properly and/or do not have the required training, always consult a specialist to solve the problem.

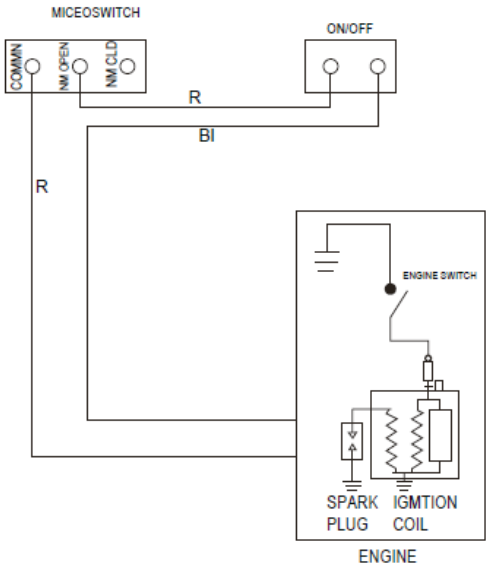
WARNING

Hot surfaces and rotating machine parts while the engine is running can cause serious injury or even death.

→ Always stop the machine before carrying out troubleshooting work and secure it against unintentional restarting.

Fault	Possible cause / remedy
engine does not start	• Check On-Off-switch and make sure it is positioned to "ON". • Check fuel supply. • Check engine oil level (a sensor prevents starting if oil level is too low). • Make sure that the spark plug ignition cable is connected. • Check spark plug. • Check carburettor and air filter and make sure they are clean.
engine stops	• Check fuel supply. • Check that the fuel tap is open. • Check oil level. • Check the condition of the air filter.
engine does not deliver enough power	• Check fuel supply (If the fuel tap is open?) • Check the condition of the air filter. • Check throttle position.

18 ELEKTRISCHER SCHALTPLAN / WIRING DIAGRAM



W	White	Br	Brown
G	Green	Lg	Light Gren
R	Red	Y	Yellow
Bu	Blue	Bl	Black

COMBINATION SWTCH

	IG	E	FS	G
OFF	○	○	○	○
ON				

19 ERSATZTEILE / SPARE PARTS

19.1 Ersatzteilbestellung / Spare parts order

(DE) Mit ZIPPER-Ersatzteilen verwenden Sie Ersatzteile, die ideal aufeinander abgestimmt sind. Die optimale Passgenauigkeit der Teile verkürzen die Einbauzeiten und erhöhen die Lebensdauer.

HINWEIS

Der Einbau von anderen als Originalersatzteilen führt zum Verlust der Garantie!
Daher gilt: Beim Tausch von Komponenten/Teile nur vom Hersteller empfohlene Ersatzteile verwenden.

Bestellen Sie die Ersatzteile direkt auf unserer Homepage – Kategorie ERSATZTEILE,
oder kontaktieren Sie unseren Kundendienst

- über unsere Homepage – Kategorie SERVICE – ERSATZTEILANFORDERUNG,
- per Mail an eg01@zipper-maschinen.at.

Geben Sie stets Maschinentype, Ersatzteilnummer sowie Bezeichnung an. Um Missverständnissen vorzubeugen, empfehlen wir, mit der Ersatzteilbestellung eine Kopie der Ersatzteilzeichnung beizulegen, auf der die benötigten Ersatzteile eindeutig markiert sind, falls Sie nicht über den Online-Ersatzteilkatalog anfragen.

(EN) With original ZIPPER spare parts you use parts that are attuned to each other shorten the installation time and elongate your products lifespan.

NOTE

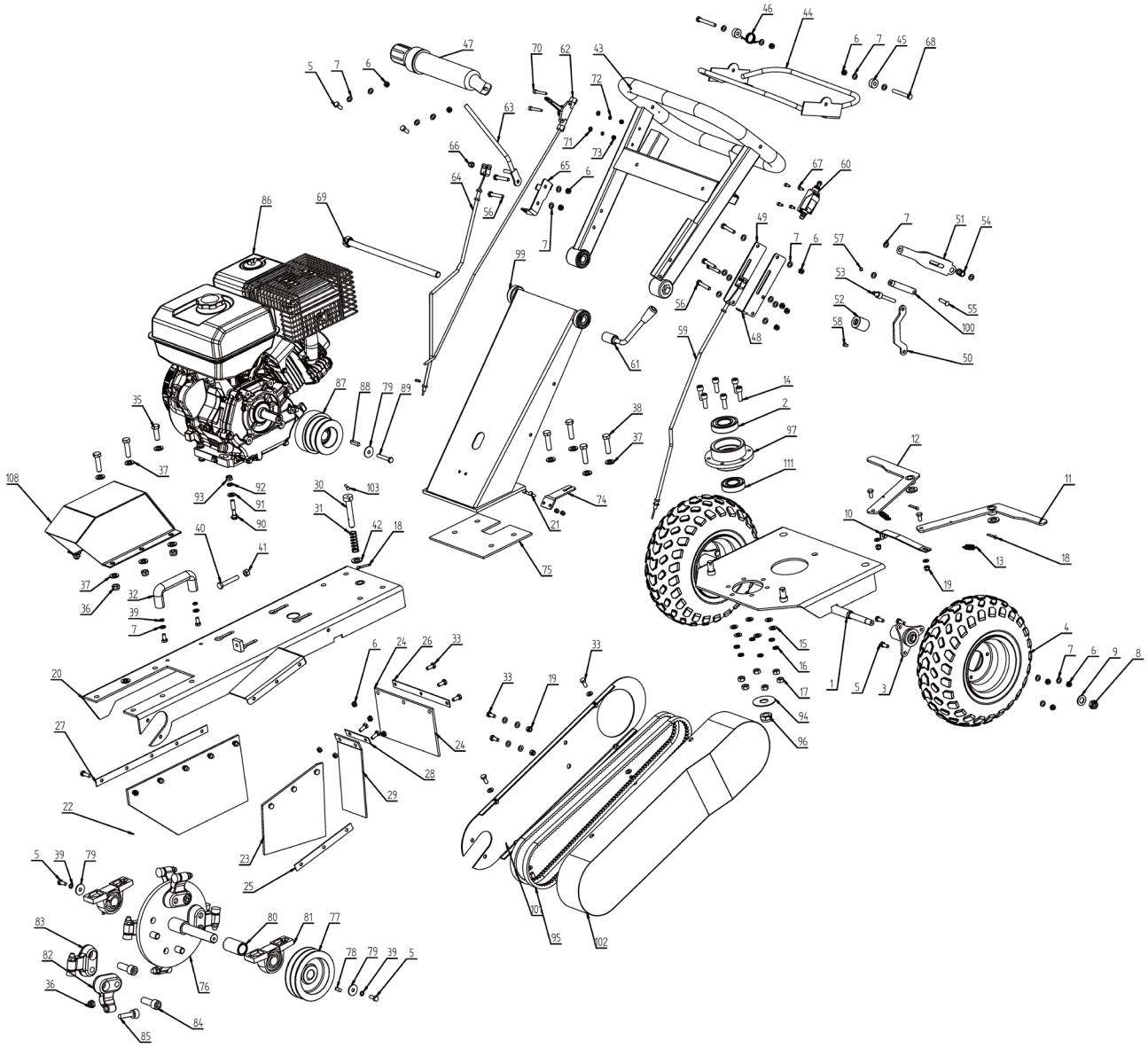
The installation of parts other than original spare parts leads to the loss of the guarantee!
Therefore: When replacing components/parts, only use spare parts recommended by the manufacturer.

Order the spare parts directly on our homepage – category SPARE PARTS or contact our customer service

- via our Homepage – category SERVICE/NEWS - SPARE PARTS REQUEST,
- by e-mail to eg01@zipper-maschinen.at.

Always state the machine type, spare part number and designation. To prevent misunderstandings, we recommend that you add a copy of the spare parts drawing with the spare parts order, on which the required spare parts are clearly marked, especially when not using the online-spare-part catalogue.

19.2 Explosionszeichnung / Exploded view



19.3 Ersatzteilliste / Spare part list

No.	Description	Qty.	No.	Description	Qty.	No.	Description	Qty.
1	Base	1	**37**	Flat washer 12	16	**73**	Hex lock nut M6	2
2	Bearing 6207-2RS	1	**38**	Hex bolt M12x45	8	**74**	Bracket of lock pin cable	1
3	Flange	2	**39**	Spring washer 8	4	**75**	Rubber pad	1
4	Wheel	2	**40**	Hex bolt M10x60	1	**76**	Cutting wheel	1
5	Hex bolt M8x20	10	**41**	Hex nut M10	1	**77**	Belt pulley	1
6	Hex lock nut M8	29	**42**	Flat washer 14	1	**78**	Key	1
7	Flat washer 8	29	**43**	Handrail	1	**79**	Lock ring	3
8	Hex lock nut M14	2	**44**	Lever	1	**80**	Left axle sleeve	1
9	Flat washer 14	2	**45**	Spring pad	2	**81**	Bearing UCP205	2
10	Connecting rod	1	**46**	Torsional spring	1	**82**	Teeth base(bent)	4
11	Brake rod L	1	**47**	Manual holder	1	**83**	Teeth base(straight)	4
12	Brake rod R	1	**48**	Right mounted plate	1	**84**	Inner hex screw M16x45	8
13	Tension spring	2	**49**	Left mounted plate	1	**85**	Teeth	8
14	Inner hex screw M10x30	6	**50**	Connecting rod	1	**86**	Engine	1
15	Flat washer 10	6	**51**	Brake handle	1	**87**	Clutch	1
16	Spring washer 10	6	**52**	Brake handle cap	1	**88**	Engine shaft key	1
17	Hex nut M10	6	**53**	Brade adjustment rod	1	**89**	Hex bolt M8x50	1
18	Split pin	3	**54**	Brake outer sleeve	1	**90**	Circular cervical bolt M10x50	4
19	Hex lock nut M8	4	**55**	Brake hinge pin	1	**91**	Flat washer 10	4
20	Chasis	1	**56**	Hex bolt M8x45	6	**92**	Spring washer 10	4
21	Hex bolt M6x16	2	**57**	Elastic collar	1	**93**	Hex lock nut M10	4
22	Right rubber baffle	1	**58**	Inner hex screw M6x10	1	**94**	Gasket	1
23	Left rubber baffle	1	**59**	Brake cable	1	**95**	Belt	2
24	Rear rubber baffle	1	**60**	Switch	1	**96**	Hex lock nut M20	1
25	Rear left rubber baffle mount plate	1	**61**	Clamp handle	1	**97**	Bearing base	1
26	Rear rubber baffle mount plate	1	**62**	Throttle lever	1	**98**	Bearing 6206-2RS	1
27	Right rubber baffle mount plate	1	**63**	Rotary pin handle	1	**99**	Handhold assembly	1
28	Rear left rubber baffle mount plate	1	**64**	Lock pin cable	1	**100**	Brake connecting pipe	1
29	Rear left rubber baffle	1	**65**	Mounted plate	1	**101**	Inner belt guard	1
30	Lock pin	1	**66**	Hex lock nut M8	1	**102**	Belt cover	1
31	Spring	1	**67**	Inner hex screw M5x12	4	**103**	Hex bolt M5x20	1
32	Lifting handle	1	**68**	Hex bolt M8x65	2	**104**	Flat washer 16	2
33	Hex bolt M8x20	14	**69**	Hex bolt M16x360	1	**105**	Hex bolt M8x16	4
34	Hex bolt M8x25	5	**70**	Inner hex screw M6x40	2	**106**	Flat washer 8	11
35	Hex bolt M12x35	2	**71**	Flat washer 6	2	**107**	Hex lock nut M6	2
36	Hex lock nut M12	14	**72**	Spring washer 6	2	**108**	Cutting wheel cover	1