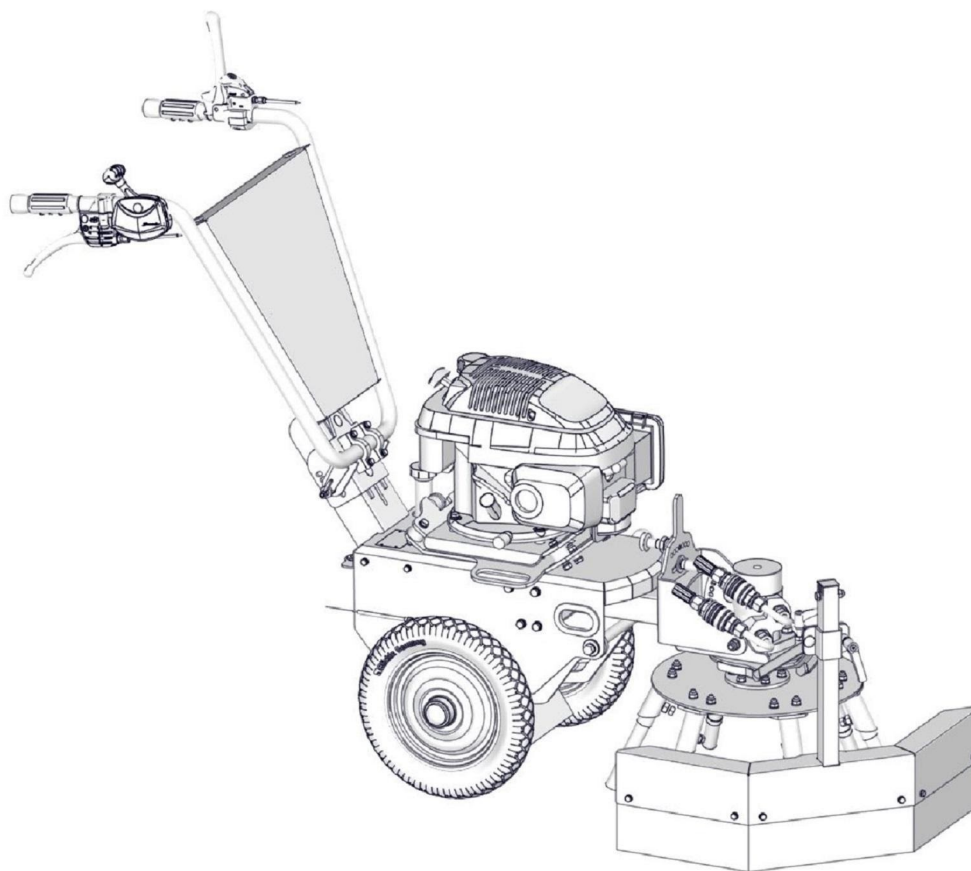




Original operating instructions

Single-axis weed brush Weedo II



Order number: B00100 from machine no.: 62954 Rev.: R00

Was standing:
2019-03-01

All rights reserved. This documentation is protected by copyright. Kersten Arealmaschinen GmbH reserves all rights that have not been expressly granted. Without prior written consent and except in cases permitted by law, this documentation may not be reproduced, distributed or made publicly available in any other way.

We reserve the right to make changes without prior notice. The original document was published in German. All translations are copies of the original document.

Copyright 2019 by Kersten Arealmaschinen GmbH

Kersten Arealmaschinen GmbH
Empeler Strasse 95
46459 Rees
Germany

Telephone: +49 2851 9234-10
Fax: +49 2851 9234-44
Info@kersten-maschinen.de
<http://www.kersten-maschinen.de/>

Information on the operating instructions

These instructions enable safe and efficient handling of the machine. The instructions are part of the machine and must be kept in the immediate vicinity of the machine and accessible to personnel at all times.

The personnel must have read and understood these instructions carefully before starting any work. The basic prerequisite for safe working is compliance with all of the safety instructions and instructions in this manual.

In addition, the local occupational safety regulations and general safety regulations apply to the area of application of the machine.

Co-Applicable Documents

In addition to these instructions, the following documents and the safety instructions listed there must be observed:

- Operating instructions of the supplier components

Customer service from the manufacturer

The customer service of the machine manufacturer is available for technical information:

Manufacturer address	Kersten Arealmaschinen GmbH Empeler Strasse 95 46459 Rees Germany
Service phone	+ 49 2851 9234-10
fax	+ 49 2851 9234-44
e-mail	Info@kersten-maschinen.de
Internet	http://www.kersten-maschinen.de



Please have the following information ready for inquiries:

- Machine / device type
- Order number of the machine
- In case of problems: exact description or exact error messages

1	foreword	6
2nd	overview	7
2.1	Overview of uniaxial weed brush	7
2.2	Single-axis weed brush	8th
2.3	Weed brush with splash guard	9
3rd	safety	11
3.1	Symbols in this manual	11
3.2	Pictograms	13
3.3	Intended Use	15
3.4	Work and danger areas	16
3.5	Safety during the work process	18th
3.6	Safety devices	21
3.6.1	Emergency shutdown via dead man's lever	22
3.6.2	Splash guard	23
3.7	Security marking	23
3.8	Residual risks	24th
3.8.1	Fundamental dangers at work	24th
3.9	environmental Protection	28
3.10	Safety instructions for maintenance / troubleshooting	29
3.11	Safety instructions for disassembly and disposal	32
4th	Functional description	33
4.1	Single-axis weed brush	33
4.2	Weed brush with splash guard	34
5	Transport, packaging and storage	36
5.1	safety instructions	36
5.2	Transport inspection	36
5.3	packaging	36
5.4	Transport of the machine	37
6	Assembly / installation, installation, initial commissioning	39
6.1	safety instructions	39
6.2	Connect / disconnect hydraulic hoses	39
7	service	40
7.1	safety instructions	40
7.2	Adjust the handrail in height and inclination	40
7.3	Overview of the function levers for starting	42
7.4	Internal combustion engines regulate with the throttle	43

7.5	Prepare the internal combustion engine for starting	44
7.6	Start the internal combustion engine	45
7.7	Weed brush driving with the dead man's device	46
7.8	Drive	48
7.9	Off	49
7.10	Requirements for optimal weed removal	50
7.11	Set working height	51
December 7th		
7.12	Align the weed brush horizontally	53
7.13	Change the direction of rotation of the weed brush	54
7.14	Swing the weed brush around the transverse axis	55
7.15	Swing the weed brush around the longitudinal axis	56
7.16	Setting the height of the splash guard	57
7.17	Setting the position of the splash guard in the plane	58
8th	maintenance	60
8.1	safety instructions	60
8.2	spare Parts	60
8.3	Maintenance work	61
8.3.1	Check safety devices for function	61
8.3.2	Daily check	62
8.3.3	Maintenance after 20 operating hours / long downtimes	63
8.3.4	Maintenance after 100 operating hours / long downtimes	64
8.3.5	Changing brush elements	65
8.3.6	Change the brush plate	66
8.4	Measures after maintenance	67
8.5	Storage	67
9	Faults / troubleshooting	68
9.1	safety instructions	68
9.2	Cause of the fault and its remedy	68
9.3	Malfunction table	68
10th	Disassembly, disposal	70
10.1	safety instructions	70
10.2	Disassembly	70
10.3	disposal	70
11	Technical data single-axis weed brush Weedo II	72
11.1	layout	72
11.2	General technical data	73
11.3	Key engine data Weedo II (Honda)	74

11.4	Engine key figures Weedo II (Briggs & Stratton)	75
11.5	Declaration of conformity	76

1 foreword

Dear Customer,

Thank you for choosing a quality product from Kersten.

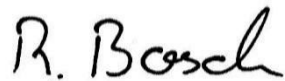
This product was manufactured according to the latest manufacturing processes and extensive quality assurance measures, because our goal is only achieved when you are satisfied with your device.

Before using this machine or attachment for the first time, please read these operating instructions carefully and in full.

If you have any information on this safety data sheet or the product. If you do not understand the specific assembly or operating instructions, please contact your seller or the machine manufacturer directly.

Keep these operating instructions within easy reach. You can then read important information and instructions if necessary.

We hope you enjoy your Kersten device



Dipl.-Ing. (FH) Robert Bosch
executive Director

2 overview

2.1 Overview of uniaxial weed brush

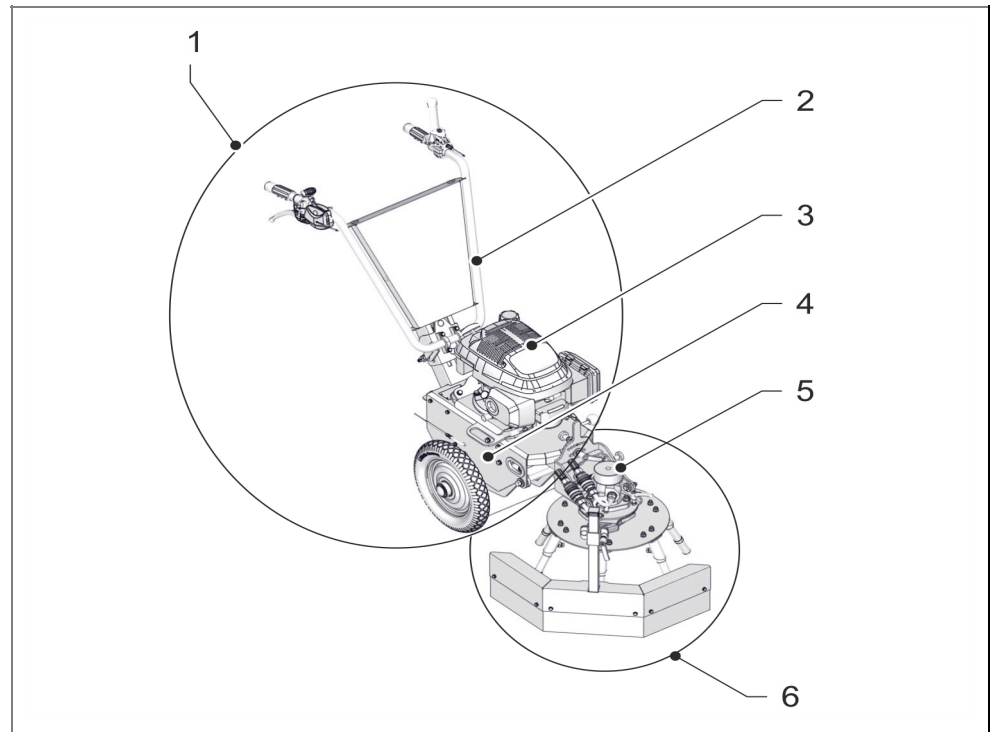


Fig.: Overview of uniaxial weed brush

- 1 Carrier vehicle
- 2nd Handholm
- 3rd Internal combustion engine
- 4th Vehicle frame
- 5 Hydraulic motor
- 6 Weed brush

The uniaxial weed brush is used for weed removal. The uniaxial weed brush consists of the carrier vehicle (1) and the weed brush (6). The carrier vehicle (1) has no traction drive, but is pushed forward on the hand rail (2). An internal combustion engine (3) is attached to the vehicle frame (4). The internal combustion engine (3) drives a hydraulic motor (5). The hydraulic motor (5) rotates the weed brush (6). The weeds are removed from the ground with the help of brush elements on the rotating weed brush (6).

2.2 Single-axis weed brush

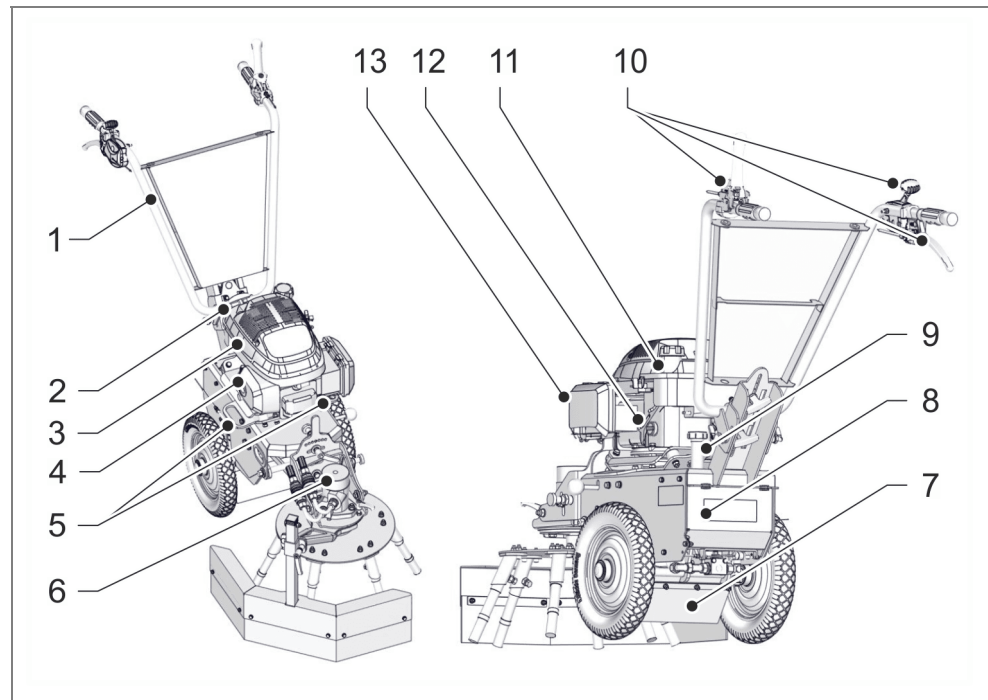


Fig.: Overview of front and back (exemplary)

- 1 Handholm
- 2nd Reversing starter of the internal combustion engine
- 3rd Petrol tank
- 4th Engine oil filler neck
- 5 Handles
- 6 Weed brush hydraulic motor
- 7 Underbody splash guard
- 8th Hydraulic pump (not visible)
- 9 Hydraulic oil filler neck
- 10th Function lever
- 11 Petrol filler neck
- 12th Fuel tap
- 13 Filter unit

The uniaxial weed brush is moved forward on the handle (1). There is an internal combustion engine on the vehicle frame. After opening the petrol tap (12), the internal combustion engine is put into operation by actuating the reversing starter (2). The petrol tank (3) of the internal combustion engine can be supplied with fuel via the petrol filler neck (11). Oil can be supplied to the oil tank of the internal combustion engine via the engine oil filler neck (4). The internal combustion engine

has a filter unit (13). The arrangement of these components may differ depending on the type of engine installed.

The internal combustion engine supplies the energy for a hydraulic pump (8) installed in the chassis. The hydraulic pump (8) ensures the circulation of the hydraulic oil and drives the hydraulic motor (6). The hydraulic motor (6) rotates the weed brush. Suitable hydraulic fluid can be filled in via the hydraulic oil filler neck (9).

The uniaxial weed brush is operated or set using various function levers (10) on the handle (1).

An underbody splash guard (7) prevents material loosened from the floor from being thrown backwards in the direction of the operator.

Carrying handles (5) can be used for lifting or lashing the uniaxial weedbrush can be used.

2.3 Weed brush with splash guard

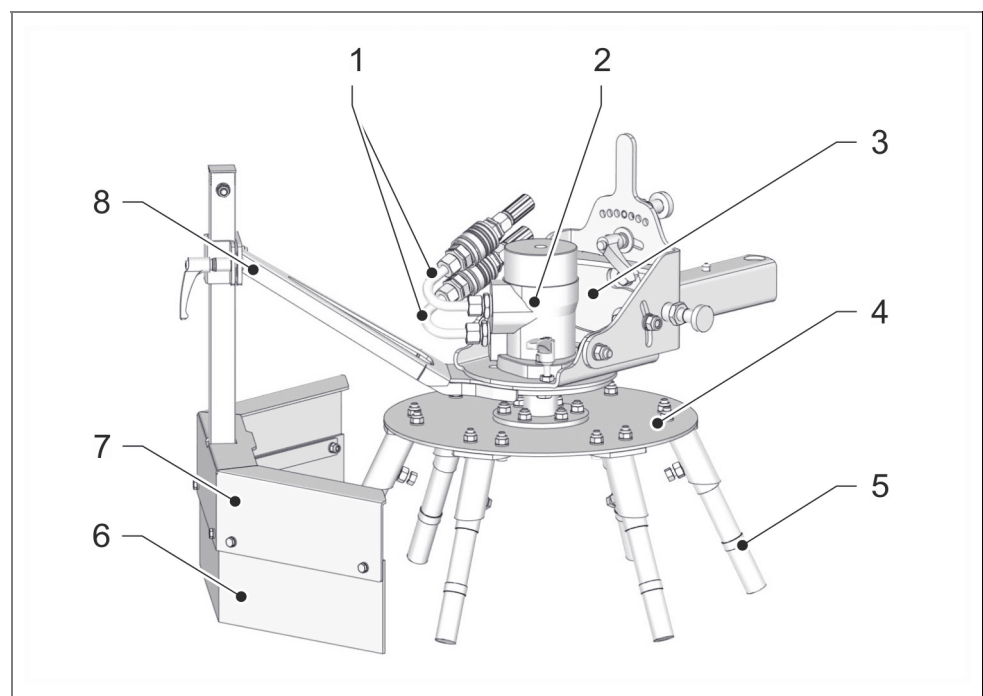


Fig. : Overview of weed brush with splash guard

- 1 Hydraulic hoses
- 2nd Hydraulic motor
- 3rd Working head
- 4th Brush plate
- 5 Wire rope braid as a brush element
- 6 Rubber washcloth
- 7 Splash guard frame with signal tape
- 8th Swivel arm

The weed brush is screwed to the uniaxial weed brush over the working head (3). The weed brush consists of a steel structure with a hydraulic motor (2) driven by hydraulic hoses (1). The brush plate (4) is mounted on the hydraulic motor (2). The brush plate (4) can be equipped with wire rope braids (5) or a tuft.

By turning the brush plate (4), the brush elements (5) remove the weeds from the joints. Removed material is caught by a side-mounted splash guard frame with signal tape (7) and rubber spray flaps (6) attached to it. The splash guard frame (7) is screwed to the working head (3) via the swivel arm (8).

3 safety

3.1 Symbols in this manual

safety instructions

The following occupational safety symbols stand for all information on occupational safety that indicate a danger to life and limb and are identified by a pictogram, a signal word and a signal color.

In the documentation, you will find an explanation of the dangerous situations at the relevant points.

Pay attention to these notes!

Observe the locally applicable safety and accident prevention regulations!

DANGER



Type and source of the hazard

This symbol warns of an immediate danger to the life and health of people. Failure to follow these instructions will result in severe health effects, life-threatening injuries and extensive property damage.

- Action that must be avoided so that the danger does not arise

WARNING



Type and source of the hazard

This symbol warns of an impending danger to the life and health of people, as well as environmental and property damage.

Failure to heed these instructions can result in serious health effects, including life-threatening injuries, or extensive environmental and property damage.

- Action that must be avoided so that the danger does not arise

ATTENTION



Type and source of the hazard

This symbol warns of an impending danger to the health of people as well as environmental and property damage.

Failure to follow these instructions can result in moderate or minor health effects, including injury, or extensive environmental and property damage.

- Action that must be avoided so that the danger does not arise

NOTE



Type and source of machine or system damage

This symbol warns of a dangerous situation and is used to indicate a note on handling the machine or system.

Failure to follow these instructions can result in extensive property damage.

- Action that must be avoided so that the machine or system damage does not occur



Tips and recommendations

This symbol highlights useful tips and recommendations, as well as information for efficient and trouble-free operation.

Other markings

The following markings are used in this manual to highlight instructions, results, lists, references and other elements:

Labelling	Explanation
1st, 2nd, 3rd ...	Step-by-step instructions
→	Results of action steps
•	Listings without a fixed order
[Button]	Operating elements (e.g. buttons, switches), display elements (e.g. signal lights)
"Display"	Screen elements (e.g. buttons, assignment of function keys)

3.2 Pictograms

Follow instructions



Only use the marked machine after reading the instructions.

Wear protective clothing



This sign indicates that protective clothing must be worn in the area concerned. Protective work clothing is tight-fitting work clothing with low tear resistance, with narrow sleeves and no protruding parts.

Wear safety shoes



This sign indicates that safety shoes must be worn in the area concerned. Safety shoes protect the feet from crushing, falling parts and slipping on slippery surfaces.

wearing safety gloves



This sign indicates that protective gloves must be worn in the area concerned. Protective gloves are used to protect the hands from friction, abrasions, punctures, cuts or deeper injuries as well as from contact with hot surfaces.

wear safety glasses



This sign indicates that safety glasses must be worn in the area in question. The safety glasses serve to protect the eyes from flying parts and liquid splashes.

Operating instructions and safety instructions



Read and observe the operating instructions and safety instructions before starting up.



Never open or remove protective devices while the engine is running.



Follow the instructions in the technical manual.
Lubrication point!



Only touch machine parts when they have come to a complete standstill.



Danger from throwing parts while the engine is running.
Keep a safe distance!

3.3 Intended Use

WARNING



Risk of injury / environmental damage due to improper use of the machine!

Improper use of the machine creates the risk of injury and damage to the environment and property (on the machine or system).

- The uniaxial weed brush as well as the alternative brush elements approved by the manufacturer are built for weed removal on relatively small areas as part of the green area and plant maintenance.
- Everyone beyond ongoing use is considered improper use. The manufacturer is not liable for any damage resulting from this, the operator alone bears the risk.
- For determination Proper use includes compliance with the operating, maintenance and repair conditions specified by the manufacturer.
- The uniaxial weed brush may only be used, serviced and repaired by persons who are familiar with it and have been informed of the dangers.
- The relevant accident prevention regulations as well as the other generally recognized safety-related and occupational medical rules must be observed.
- Unauthorized changes to the machine lead to the manufacturer's disclaimer for the resulting damage.

3.4 Work and danger areas

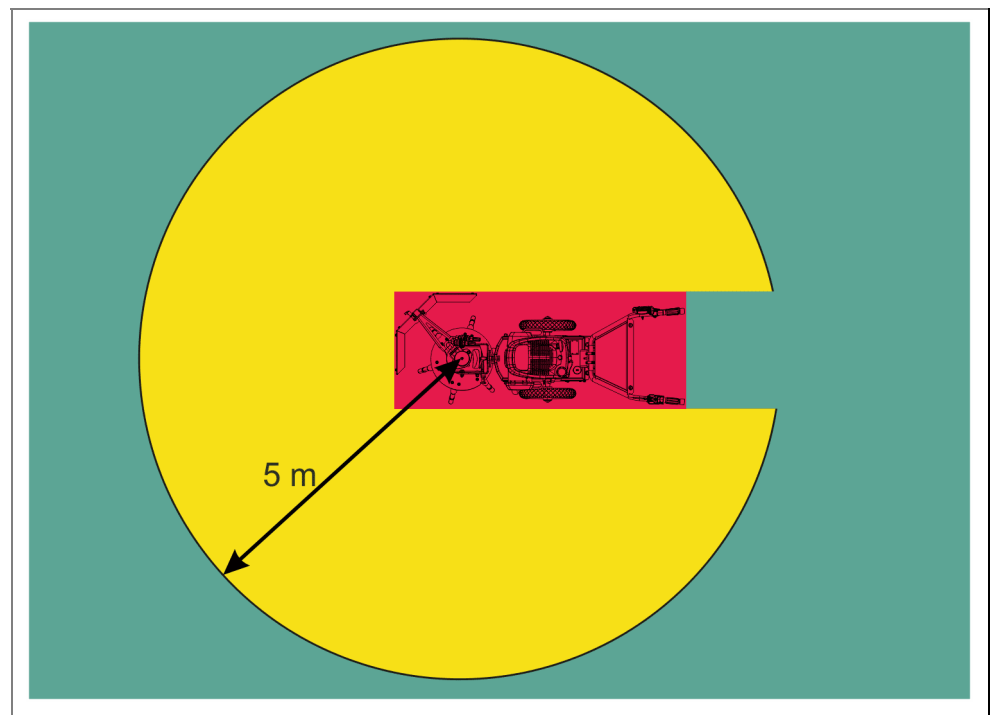


Fig.: Work area, safety area and danger area

- RED → Danger zone
- YELLOW → Safety area (radius of 5 meters around the brush plate)
- GREEN → Workspace

⚠ WARNING



Risk of injury / danger of environmental damage from working / staying in the danger zone!

Working / staying in the danger zone creates the risk of injury and damage to the environment and property (on the machine or system).

- The user is responsible towards third parties in the danger and safety area of the machine!
- Staying in the danger and safety area of the machine is prohibited! All persons must be directed out of the danger and security area. The safety area has a radius of 5 m around the brush plate.
- When people approach the danger and safety area, the machine must be shut down.
- Of the The operator must ensure that there are no people or property in the discharge area (safety area).
- Before switching on the attachment and starting up, both the danger area and the safety area must be checked. Pay special attention to children and animals. Pay attention to sufficient visibility!
- Park the attachment in areas that are difficult to see and make sure that nobody is in the danger and safety area.
- Foreign objects must be removed from the surface to be worked before starting work. Pay attention to other foreign objects when working and remove them in good time.
- When working in enclosed areas, the safety distance from the edge must be maintained so as not to damage the machine or brushes.
- When working in the immediate vicinity of public roads and paths, these should not be used if possible not along, but as far as possible across. This minimizes the risk of injury for third parties due to objects flying out.
- When working on public streets and squares or in the immediate vicinity, there are signs and danger signs to be drawn up to draw the attention of third parties.

3.5 Safety during the work process

Commissioning restrictions

WARNING



Risk of injury / risk of environmental damage due to non-compliance with the safety measures!

Failure to observe the safety measures creates the risk of injury and damage to the environment and property.

- The uniaxial weed brush must not be operated by anyone under the age of 16, even under the supervision of an adult. Children and adolescents should be instructed not to play with the device.
- Only trained personnel or persons may use this machine.
- When using public traffic routes, the respective regulations must be observed
- The uniaxial weed brush is not approved for public transport.
- The user's clothing should fit snugly. Avoid loose clothing and wear sturdy shoes or safety shoes!
- Only work in good visibility and light conditions!
- The attached warning and information signs gjust important information for safe operation. These instructions must be observed.
- The transportation of people and objects is prohibited!

Before starting work

WARNING



Risk of injury / risk of environmental damage due to non-compliance with the safety measures!

Failure to observe the safety measures creates the risk of injury and damage to the environment and property.

- Before starting work, you must familiarize yourself with all facilities and operating elements and their Function to be made familiar. The quick and safe stopping of the engine in an emergency must be mastered.
- It must be ensured that all protective devices are properly attached and in the protective position. During workIt's too late for that!
- The machine must be checked for operational safety before each start-up.
- The hydraulic connections and hoses must be checked for leaks and replaced if necessary.
- The machine must never be defective or missingProtective devices are operated.
- The machine must be checked for operational safety before each start-up!
- In addition to the information in these operating instructions, the generally applicable safety and accident prevention regulations must also be observeden.

During operation

WARNING



Risk of injury / risk of environmental damage due to non-compliance with the safety measures!

Failure to observe the safety measures creates the risk of injury and damage to the environment and property.

When starting the engine:

- When starting the engine, all drives must be switched off.
- The engine must not run in closed rooms.
- Do not stand in front of the uniaxial weed brush to start the engine.
- No jump-start fluids at loadingUse electrical jump starter (jump starter cable). There is a risk of explosion!

During driving:

- Never leave the operator station on the hand bar while driving.
- Never adjust the hand rail while driving.
- During the Do not make any adjustments to the attachment during operation - risk of accident!
- Caution with rotating tools - safety distance!
- Beware of trailing tools. Wait before working on them until they come to a complete standstill!
- Located on driven partsthe pinch and shear points.

In dangerous situations

WARNING



Risk of injury / risk of environmental damage due to non-compliance with the safety measures!

Failure to observe the safety measures creates the risk of injury and damage to the environment and property.

- If people or motor vehicles approach the danger or safety area (radius 5 m), switch off the attachment immediately.
- If the attachment is blocked by a foreign body, the engine and the attachment must be switched off to clean with a suitable tool.
- In the event of damage the uniaxial weed brush or the attachment immediately switch off the engine and have the damage repaired.
- Stop working if the attachment vibrates strongly! The machine is so place. If necessary, have the fault rectified by a specialist.

At the end of work, leave the machine

⚠ WARNING



Risk of injury / risk of environmental damage due to non-compliance with the safety measures!

Failure to observe the safety measures creates the risk of injury and damage to the environment and property!

- Never leave the machine unattended while the engine is still running!
- Before leaving the vehicle, the throttle on the handlebar must be in the off position.
- Do not leave the control panel until the attachment brushes have come to a standstill!
- The internal combustion engine must be switched off, ie the petrol tap must be closed.
- The device must be secured against unauthorized use.
- The machine must be secured against rolling away when leaving.

During transportation

⚠ WARNING



Risk of injury / risk of environmental damage due to non-compliance with the safety measures!

Failure to observe the safety measures creates the risk of injury and damage to the environment and property.

- The engine must be switched off for transport on motor vehicles or trailers outside the area to be worked.

Forbidden manipulation

⚠ WARNING



Risk of injury / risk of environmental damage due to non-compliance with the safety measures!

Failure to observe the safety measures creates the risk of injury and damage to the environment and property.

- Unauthorized conversions that affect the operational safety of the machineendangering are prohibited!

3.6 Safety devices

⚠ DANGER



Danger to life or injury from non-functioning safety devices!

If the safety devices do not work or are deactivated, there is a risk of serious injuries and even death.

- Before starting work, check that all safety devices are inoperative and correctly installed.
 - Never override or bypass safety devices.
 - Make sure that all safety devices are always accessible.
-

3.6.1 Emergency shutdown via dead man's lever

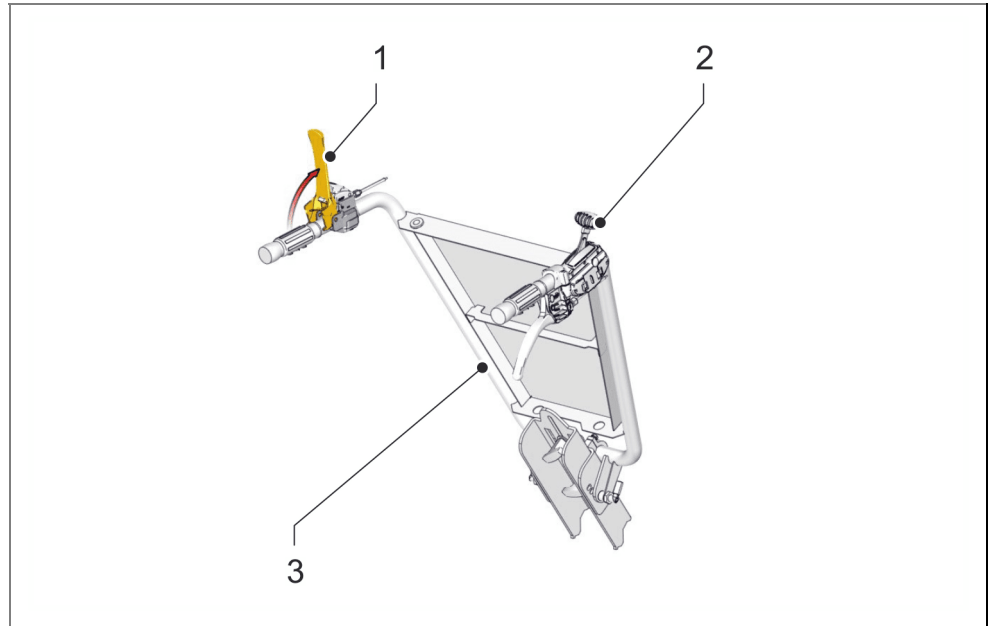


Fig.: Handlebar with dead man's lever

- 1 Dead man's lever
- 2nd Throttle
- 3rd Handholm

An emergency stop is achieved with the uniaxial weed brush by releasing the dead man's lever (1). The dead man's lever (1) is located on the left handle of the handlebar (3). The weed brush rotates as long as the dead man's lever (1) is held down and at the same time the throttle lever (2) is not in the off position. Release the depressed dead man's lever (1) immediately in an emergency. This triggers an interruption in the hydraulic drive - the weed brush stops after a short overrun.

NOTE



Releasing the dead man's lever does not bring the vehicle or the combustion engine to a standstill!

Machine or system damage due to moving device or running engine!

If the operator continues to move the uniaxial weed brush, machine or system damage can occur in emergency situations despite the dead man's handle being released.

Continued operation of the internal combustion engine can result in machine or system damage in emergency situations despite the dead man's lever being released.

1. Stop the uniaxial weed brush immediately in emergency situations.
- 2nd. Move the throttle control to the off position.
- 3rd. Turn off the fuel tap on the internal combustion engine.

3.6.2 Splash guard

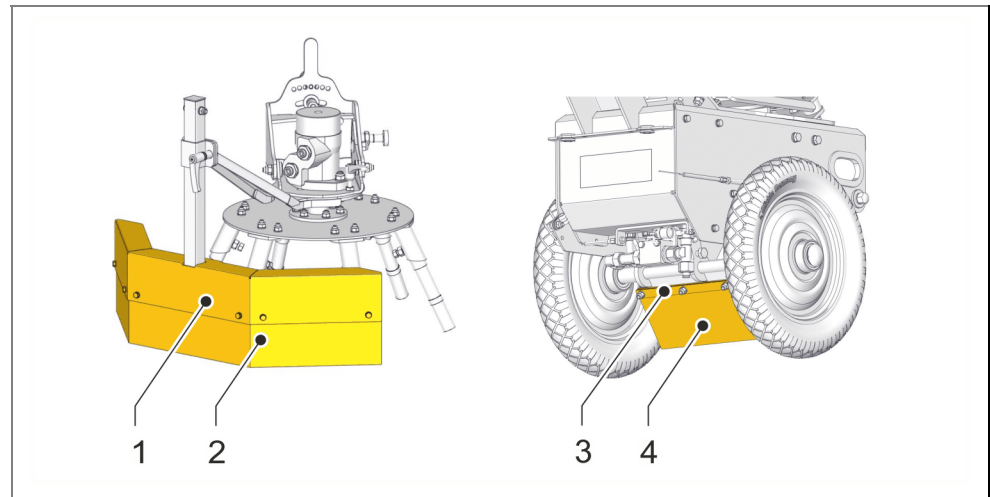


Fig.: Splash guard frame with signal tape

- 1 Splash guard frame with signal tape
- 2nd Rubber washcloth
- 3rd Underbody splash guard frame
- 4th Underbody rubber spray cloth

As the weed brush rotates, material is catapulted off the ground. The splash guard frame with signal tape (1) and rubber spray flap (2) is located on the spray guard holder of the weed brush. The splash guard separates the danger area of the machine and protects people from foreign bodies, dirt and liquids.

The underbody splash guard frame (3) with underbody rubber spray flaps (4) protects the operator on the handlebar from material splashing backwards.

3.7 Security marking

The following symbols and signs are located in the work area. They relate to the immediate environment in which they are installed.

WARNING



Risk of injury due to illegible or missing signage!

Missing and illegible stickers and signs can result in serious health effects and even life-threatening injuries.

- Always keep all safety, warning and operating instructions in a legible state.
- Replace damaged signs or stickers immediately.

3.8 Residual risks

The machine is designed according to the state of the art and according to current safety requirements. Nevertheless, residual dangers remain that require prudent action. The residual risks and the resulting behaviors and measures are listed below.

3.8.1 Fundamental dangers at work

Suspended loads

 **DANGER**



Danger to life or injury from suspended loads!

When lifting, loads can swing out and fall. There is a risk of death or injury, and there is a risk of property damage to the machine or system.

- Never step under or into the swivel range of suspended loads.
- Loads only below move supervision.
- Use only approved hoists and lifting gear with sufficient load capacity.
- Do not use torn or chafed lifting equipment such as ropes and belts.
- Hoists such as ropes and belts do not have sharp edges and EcPut it on, do not knot and do not twist.
- Lower the load when you leave the workplace.

Off-center focus

 **DANGER**



Danger to life or injury from tipping or falling packages!

Packages with an eccentric center of gravity can swing out, tip over and fall when lifted. There is a risk of life or injury.

- Use only the intended attachment points.
- Note the center of gravity.
- Always lift packages carefully and ensure that they do not tip or fall.
- If necessary, lash packages when transporting with a forklift.

Improper transportation

NOTE



Property damage due to improper transportation

Improper transport can cause items to fall or fall over. This can result in considerable damage to property.

- When unloading the transport items upon delivery and during in-house transport, proceed carefully and observe the symbols and instructions on the packaging.
- Only remove packaging after the machine has been finally positioned in a safe position.
- Multiple people lifting the machine only on the provided handles.
- For lifting and use the transport bracket to transport the machine with a crane.

dirt and objects lying around

ATTENTION



Risk of injury from falling over dirt and objects lying around!

Dirt and objects lying around form sources of slipping and stumbling. Injuries can result from a fall.

- Always keep the work area clean.
- Objects from the work area and no longer required especially remove from the ground.
- Remove tools or components from the work area.

cleaning supplies

WARNING



Risk of injury due to improper handling of cleaning agents or substances

Improper handling of cleaning agents or substances can result in serious health effects and even life-threatening injuries.

- The material safety applicable to the cleaning agents or substances. Read the manufacturer's data sheets and instructions.
- Appropriate protective equipment (e.g. gloves, safety shoes, protective suit, respiratory mask, safety glasses, etc.) must be worn.
- Adequate ventilation of the surroundings must be ensured.
- Be careful when handling hot cleaning agents or substances. Touching it can cause burns and scalds.
- If necessary, parts, assemblies or components must be cleaned of adhering oils, greases and other contaminants.
- Skin contact with cleaning agents or substances should be avoided.
- Vapors from cleaning agents or substances must not be inhaled.
- Do not handle or smoke near an open fire.

Noise level

Valid noise protection regulations as well as the warnings in the entire documentation must be observed. The noise level on site depends on the local ambient noise. The operator must check the noise level at regular intervals.

WARNING



Risk of injury from noise!

The noise level in the work area can cause serious hearing damage.

- Covers, insulating materials and others. Insulating device parts must not be removed and must be replaced if damaged.
- If the daily noise exposure level exceeds 85 dB (A), the operator must order hearing protection in this case.
- Only if necessary in the danger zone.

Moving components

DANGER



Danger to life or injury from moving components!

Improper handling of moving components can result in death or injury, as well as property damage to the machine or system

- Do not intervene in moving components during operation or handle moving components.
- Never open covers during operation.
- Note the run-on time: Before opening the covers, make sure that no components move.
- Wear tight-fitting protective clothing with low tear resistance in the danger zone.

Sharp edges and sharp corners

ATTENTION



Risk of injury from sharp edges and sharp corners!

Sharp edges and sharp corners can lead to skin abrasion and cuts.

- When working near sharp edges and careful corners.
- If in doubt, wear protective gloves.

Hydraulics

DANGER



Danger to life or injury from hydraulic energy!

There is a risk of death or injury from hydraulically driven moving components.

- Have work on the hydraulic system carried out only by hydraulic specialists.
- Not in operation during operation Intervene removed components or handle moving components.
- Do not open covers during operation.
- Wear tight-fitting protective clothing with low tear resistance in the danger zone.

Resources / Operating materials / Lubricants / Oils

⚠ WARNING



Risk of injury due to improper handling of equipment or materials!

Improper handling of consumables or materials can result in serious health effects and even life-threatening injuries.

- Read the for the equipment or / -materials applicable material safety data sheets and instructions of the manufacturer.
- Wear the appropriate protective equipment (e.g. gloves, safety shoes, protective suit, breathing mask, safety glasses, etc.).
- After accidental eye contact Rinse eyes thoroughly with plenty of water and see a doctor.
- Wash off with plenty of water after skin contact.
- Provide adequate ventilation for the surroundings.
- Be careful when handling hot equipment or materialen. Touching it can cause burns and scalds.
- If necessary, clean parts, assemblies or components from adhering oils, greases and other soiling.
- Avoid skin contact with equipment or materials.
- Breathe vapors of operating fluids or materials.
- Do not handle near open flames or smoke.

3.9 environmental Protection

⚠ WARNING



Danger of environmental damage due to improper handling of operating materials or operating materials as well as cleaning agents or cleaning materials!

Improper handling of operating materials and materials as well as cleaning agents and materials can result in extensive damage to the environment and property.

- Read the material safety data sheets and instructions of the manufacturers applicable to the operating materials or operating materials as well as cleaning agents or cleaning agents
- Store water and soil tightOperating fluids or supplies, such as oil-contaminated parts, assemblies or components in secured areas or drip pans
- Tie auUsed equipment or operating materials as well as cleaning agents or cleaning materials with a binding agent and dispose of them in accordance with local regulations
- If necessary, clean parts, assemblies or components from adhering oils, greases and other soiling
- Leave auDo not infiltrate used equipment or consumables, as well as cleaning agents or cleaning agents, in the ground or get into the sewage system

The following environmentally hazardous substances are used:

Lubricants

Lubricants such as fats and oils contain toxic substances. They must not get into the environment. Disposal must be carried out by a specialist disposal company.

Oils

Oils (e.g. lubricating, hydraulic or cleaning oils) must not be released into the environment. Oils lead to long-term harmful effects in water. Disposal must be carried out by a specialist disposal company.

Observe the manufacturer's safety data sheets.

Electronic components

Electronic components can contain toxic substances. They must not get into the environment. Disposal must be carried out by a specialist disposal company.

3.10 Safety instructions for maintenance / troubleshooting

Behavior in the event of dangerous faults

Basically:

1. In the event of faults that pose an immediate danger to people or property due to the rotation of the weed brush, immediately initiate an emergency stop by releasing the dead man's lever and bring the uniaxial weed brush to a standstill.
- 2nd. Move the throttle control to the off position.
- 3rd. Determine the cause of the fault.
- 4th. If troubleshooting requires work in the danger area, close the petrol tap on the internal combustion engine.
5. Each Depending on the type of fault, have it rectified by authorized specialist personnel or rectify it yourself.

⚠ DANGER**Danger to life or injury due to improperly performed maintenance work / troubleshooting work!**

Improper maintenance work / troubleshooting work can result in death or injury, as well as property damage to the machine.

- Observe all safety information in this chapter as well as the relevant locally applicable safety and accident prevention regulations
- Only carry out troubleshooting and maintenance and cleaning work after it has been ensured that the machine, including the engine and trailing machine parts, is at a standstill and the fuel tap is closed.
- Blockages first loosen if it is ensured that loosening does not result in any dangerous movement of machine parts.
- Ensure sufficient freedom of assembly before starting work.
- Pay attention to order and cleanliness at the assembly site. Loose components or tools lying on top of each other or lying around are sources of accidents.
- Before working on hydraulic components, note the following:
 - Before starting work, wait until the oil has cooled below 50 ° C.
 - Before starting work, have a temperature-resistant container with the necessary capacity available for each type of oil.
- When components have been removed pay attention to correct assembly. All fasteners must be reinstalled.
- Before starting up again, note the following:
 - Ensure that all work has been carried out and completed in accordance with the information and instructions in this manual.
 - Make sure that there are no people in the danger zone.
 - Make sure that all covers and safety devices are installed and working properly.

⚠ WARNING**Risk of injury / risk of environmental damage due to insufficient / faulty maintenance!**

A lack of maintenance creates the risk of injury and damage to the machine and the environment and property.

- maintenance and cleaning work should only be carried out with the combustion engine stopped and the fuel tap closed.
- Always remove the spark plug connector when working on the engine.
- Simple cleaning and adjustment work may be carried out by operating personnel. Maintenance and repair work may only be carried out by trained specialist personnel.
- Instructions and instructions from the original operating instructions for the installed parts must be observed will.
- If protective devices and working tools are subject to wear, they must be checked regularly and replaced if necessary.
- When replacing cutting tools is the appropriate tool use and wear the appropriate protective equipment.
- After maintenance and cleaning work, reinstall the protective devices and bring them into the protective position.
- Original only-Use spare parts from the manufacturer, as these meet the technical requirements and thus the risk of accidents is minimized.
- Cleaning work with the high-pressure cleaner should be carried out so that the water jet is not held directly on bearings, turned parts, grease nipples, shaft seals, wheel hubs etc. After each cleaning with the Hochdthe cleaning points must be relubricated. Failure to do so will void the right to warranty!
- Check nuts and bolts for tightness for the first time after 5 hours of operation and in succession and tighten if necessary.
- SchutlInstall the z equipment after maintenance and bring it into the protective position.
- When carrying out maintenance, cleaning and repair work on the raised device, always secure it with suitable support elements.

⚠ WARNING**Risk of injury / danger of environmental damage due to insufficient / faulty maintenance (hydraulics)!**

A lack of maintenance creates the risk of injury and damage to the machine and the environment and property.

- Before carrying out repair work, ensure that the hydraulic system is depressurized because liquids under pressure can penetrate the skin and cause serious injuries! Therefore, see a doctor immediately - risk of infection.
- Check hydraulic connections for the first time after 5 hours of operation, tighten if necessary.

**Only pulling is unsuccessful!**

First loosen a leaky hydraulic screw connection, then move the hose or screw connection. The screw connection can then be tightened again.

- Hydraulic hose lines at regular intervals for damage and examine aging and replace if necessary.
- Hydraulic hose lines must be completely replaced at least every 6 years. The date of manufacture is stamped on the hose line.
- Send used oils and fats for recycling.
- Oil flowing past remove immediately with oil binder.
- Remove excess fat.

NOTE

By wrong ÖL or fat quantities, as well as impurities kön SchÄon gears and components!

Damage to components can shorten the lifespan of components.

- The amount of oil, as well as the position of the locking elements of gear units, depends on their design and installation position
- After removing the oil level screw, the oil level may be a maximum of 3 to 5 mm below the prescribed fill level
- transmission Close immediately after checking the oil level or changing the oil
- Do not flush components (gears, bearings, etc.) with cleaning agents until you have consulted the manufacturer.
- When relubricating lubrication points via SchmierniThe lubricant must not be pressed in with high pressure or hard lubrication impacts. The maximum permissible lubrication pressure is 15 bar.

3.11 Safety instructions for disassembly and disposal

⚠ WARNING



Risk of injury if improperly dismantled!

Stored residual energy, angular components, tips and corners on or in the machine or on the required tools can cause injuries.

- Make sure there is enough space before starting work.
- Handle open, sharp-edged components with care.
- Okay and Sat. Pay attention to the workplace! Loose components or tools lying around or lying around are sources of accidents.
- Dismantle components properly. Note the high weight of the components in some cases. If necessary, use hoists.
- Components sicso that they do not fall or fall over.

4 Functional description

4.1 Single-axis weed brush

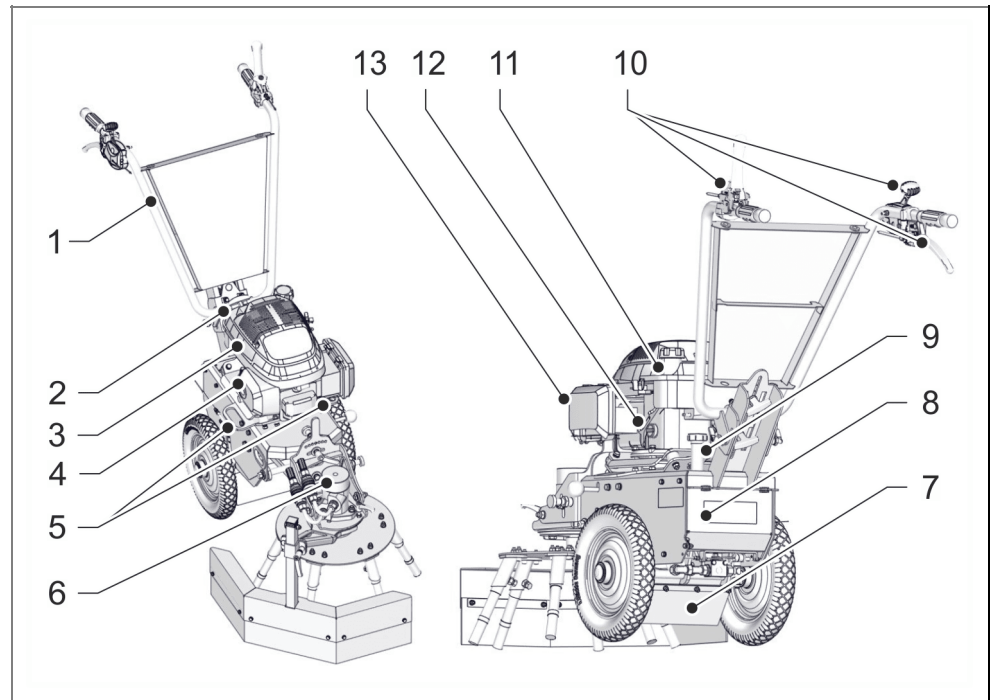


Fig.: Overview of front and back (exemplary)

- 1 Handholm
- 2nd Reversing starter of the internal combustion engine
- 3rd Petrol tank
- 4th Engine oil filler neck
- 5 Handles
- 6 Weed brush hydraulic motor
- 7 Underbody splash guard
- 8th Hydraulic pump (not visible)
- 9 Hydraulic oil filler neck
- 10th Function lever
- 11 Petrol filler neck
- 12th Fuel tap
- 13 Filter unit

The uniaxial weed brush is moved forward on the handle (1). There is an internal combustion engine on the vehicle frame. After opening the petrol tap (12), the internal combustion engine is put into operation by actuating the reversing starter (2). The petrol tank (3) of the internal combustion engine can be supplied with fuel

via the petrol filler neck (11). Oil can be supplied to the oil tank of the internal combustion engine via the engine oil filler neck (4). The internal combustion engine has a filter unit (13). The arrangement of these components may differ depending on the type of engine installed.

The internal combustion engine supplies the energy for a hydraulic pump (8) installed in the chassis. The hydraulic pump (8) ensures the circulation of the hydraulic oil and drives the hydraulic motor (6). The hydraulic motor (6) rotates the weed brush. Suitable hydraulic fluid can be filled in via the hydraulic oil filler neck (9).

The uniaxial weed brush is operated or set using various function levers (10) on the handle (1).

An underbody splash guard (7) prevents material loosened from the floor from being thrown backwards in the direction of the operator.

Carrying handles (5) can be used for lifting or lashing the uniaxial weedbrush can be used.

4.2 Weed brush with splash guard

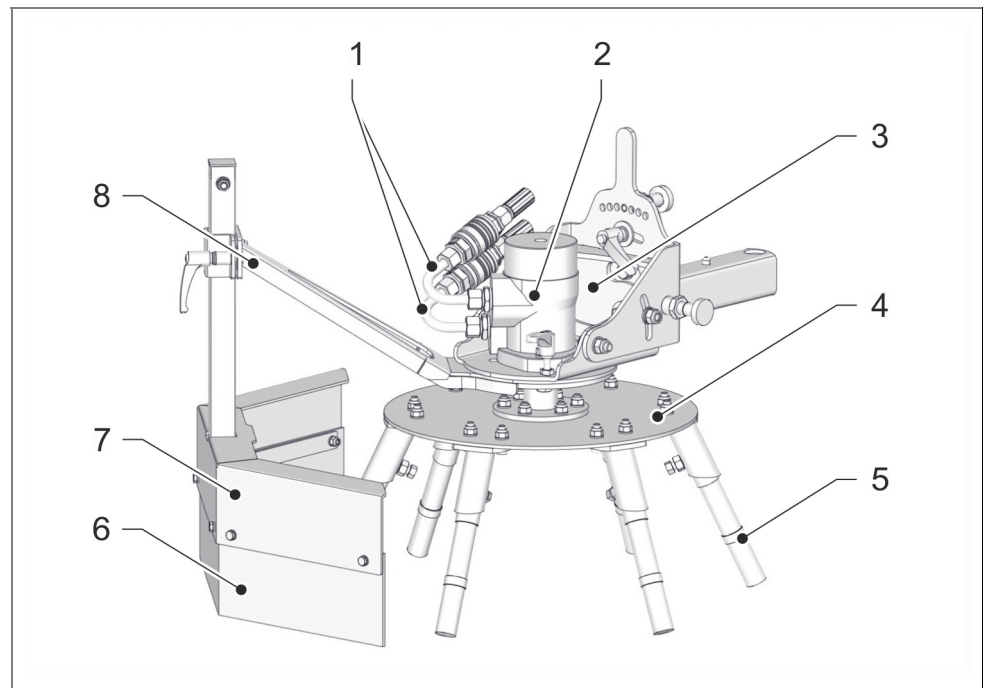


Fig. : Overview of weed brush with splash guard

- 1 Hydraulic hoses
- 2nd Hydraulic motor
- 3rd Working head
- 4th Brush plate
- 5 Wire rope braid as a brush element
- 6 Rubber washcloth
- 7 Splash guard frame with signal tape
- 8th Swivel arm

The weed brush is screwed to the uniaxial weed brush over the working head (3). The weed brush consists of a steel structure with a hydraulic motor (2) driven by hydraulic hoses (1). The brush plate (4) is mounted on the hydraulic motor (2). The brush plate (4) can be equipped with wire rope braids (5) or a tuft.

By turning the brush plate (4), the brush elements (5) remove the weeds from the joints. Removed material is caught by a side-mounted splash guard frame with signal tape (7) and rubber spray flaps (6) attached to it. The splash guard frame (7) is screwed to the working head (3) via the swivel arm (8).

5 transport, Packaging and storage



Assembly, installation and commissioning are carried out exclusively by the dealer's employees or by persons authorized by him.

Nevertheless, it can happen that the operator or maintenance personnel of the operator are entrusted with the handling of packages as part of the installation and further use. When doing so, it is imperative that you follow the instructions listed below.

5.1 safety instructions



It is imperative that you observe all the safety instructions listed in the Safety chapter!

(See Chapter 3rd safety on page)

5.2 Transport inspection

Check the delivery immediately upon receipt for completeness and transport damage.

If the transport damage is visible from the outside, proceed as follows:

- Delivery not or only under Vto accept with caution.
- Note the extent of damage on the transport documents or on the carrier's delivery note.
- Initiate a complaint.



Claim any defect as soon as it is recognized. Claims for damages can only be made within the applicable complaint periods.

5.3 packaging

Handling packaging materials

The packaging material must be disposed of in accordance with the applicable statutory provisions and local regulations.

NOTE



Danger to the environment due to incorrect disposal!

Packaging materials are valuable raw materials and can in many cases continue to be used or sensibly processed and reused. Improper disposal of packaging materials can pose environmental hazards.

- Packaging materials environmentally friendly eworry.
- Observe the locally applicable disposal regulations. If necessary, commission a specialist company with the disposal.

5.4 Transport of the machine

NOTE



Property damage due to improper handling!

Improper handling of the machine can lead to damage.

- Do not tip the machine or around the horizontale axes.
- Vehicles, aids and slings must be suitable for the weight of the transport units.
- The driver must be authorized to drive the vehicle.

protective gear

- Protective clothing
- Protective gloves
- Safety shoes

The following points must be observed when transporting the machine:

- Loading, unloading and transport are carried out using suitable transport vehicles and trailers approved for public transport.
- The transport vehicles must be suitable for the transport weight and the dimensions of the machine / carrier vehicle combination to be transported.
- The The machine must be attached to the marked attachment points.
- There are use adequately dimensioned lifting gear / lashing equipment.
- The Lifting gear / lashing equipment must not be damaged.
- Only functionally correct, safety-technically correct and load-bearing vehicles and aids or lifting gear / lashing equipment are to be used for transport.
- Do not stack the individual transport units on top of one another!

DANGER



Danger to life or injury due to incorrect transport of the machine!

If the machine is transported incorrectly, there is a risk of death or injury as well as property damage to the machine!

- The machine may only be secured at the designated attachment points for transport.
- Note the total weight of the uniaxial weed brush.
- The ramps must be secured against slipping.
- The ramps must have sufficient load capacity.

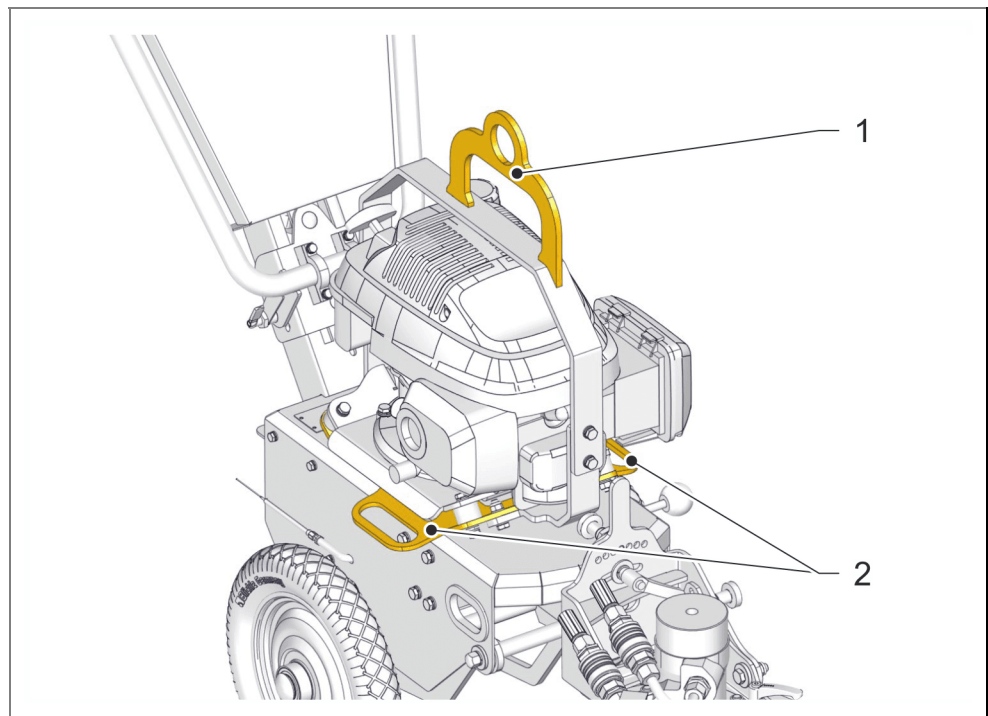


Fig.: Components for transporting the machine

1 Transport bracket

2nd Handles

To transport the machine by crane, use the eyelet on the existing transport bracket (1) on the uniaxial weed brush. Two people are required to lift the device by the two handles (2). Lashing for transport can be carried out both on the carrying handles (2) and on the eyelet of the transport bracket (1).

Before finally tightening the machine for transport, note the following:

- The machine may only be transported with the throttle in OFF position and closed fuel tap.
- Only functional sling gear that is functionally correct, safe in terms of safety and appropriate to the load may be used.
- Lifting gear must first be pre-tensioned.
- It is open correct fit and correct load distribution.

6 Assembly/ Lineup, Installation, Initial start-up

6.1 safety instructions



It is imperative that you observe all the safety instructions listed in the Safety chapter!

(See Chapter 3rd safety on page)

6.2 Connect / disconnect hydraulic hoses

The following points must be observed when connecting or disconnecting threaded hydraulic hoses:

- Stop the engine of the carrier machine!
- Hydraulic controls move back and forth by a Relieve excess pressure.
- Before the Connecting or disconnecting hydraulic hoses must ensure that the hydraulic system is not under pressure. The entire machine must not be under pressure
- Before Connecting make sure all connections are clean. Contamination in the hydraulic oil causes serious damage to the hydraulic system.
- When connecting hydraulic hoses, remove protective covers from the couplings and establish the hydraulic connection.
- When disconnecting hydraulic hoses Clean and clean the connection points before the protective covers are put on. Always protect free connection points with protective covers.

Connect or disconnect hydraulic hoses with coupling plug in coupling sleeve.

7 service

7.1 safety instructions



It is imperative that you observe all the safety instructions listed in the Safety chapter!

(See Chapter 3rd safety on page)

7.2 Adjust the handrail in height and inclination

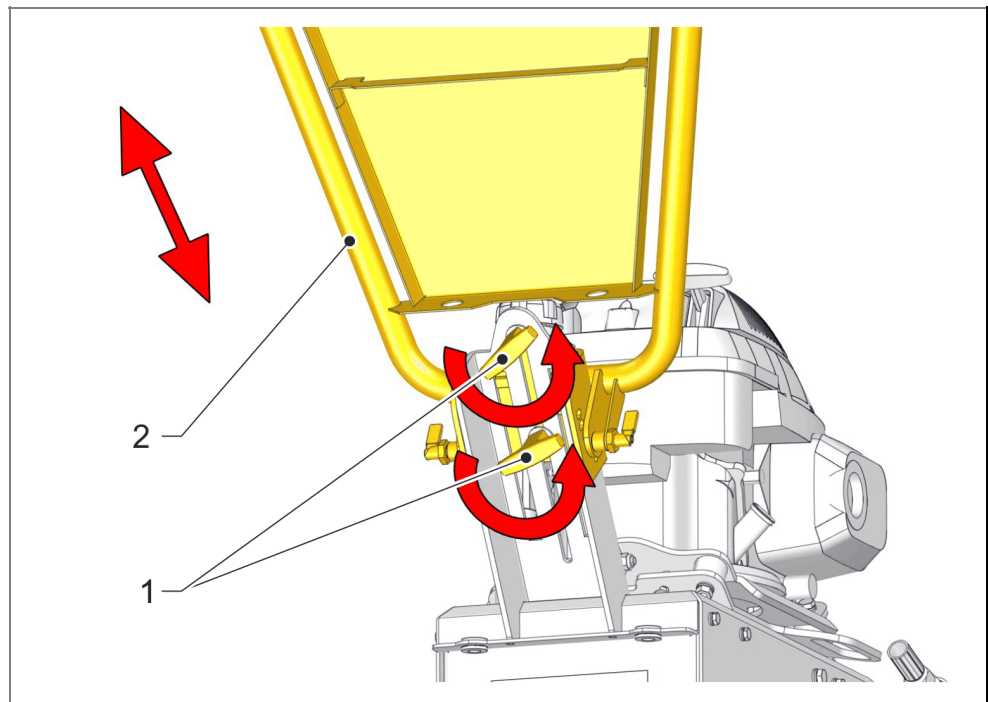


Fig.: Adjust the height of the hand rail

- 1 Fixing screws
- 2nd Handholm

The height of the hand rail (2) can be adjusted continuously within the inclined linear guide. The handlebar (2) can thus be ergonomically adapted to the size of the operator.

The height adjustment is accomplished through the following steps:

1. Loosening the fixing screws (1)
- 2nd. Moving the handlebar (2) within the guide
- 3rd. Tightening the fixing screws (1)

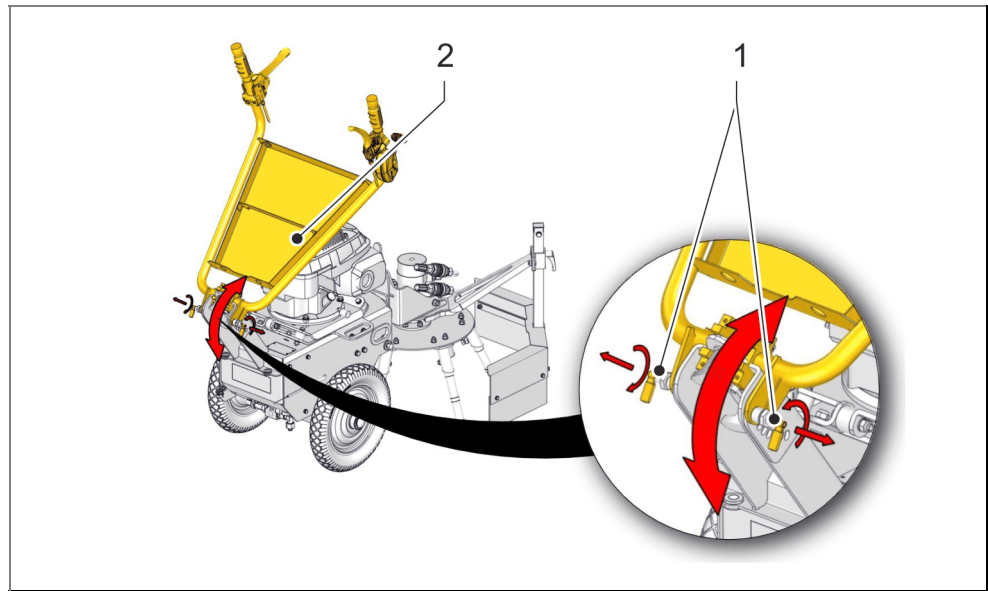


Fig.: Adjust the handrail in the incline

- 1 Bolt handles
 2nd Handholm

The handlebar (2) can be adjusted in six steps - regardless of the height set - in the angle of inclination. The operator can be guaranteed an ergonomically optimal position of the hand bar (2).

The inclination angle is adjusted by the following steps:

1. Loosen the locking bolt by pulling and turning the bolt handles (1) counterclockwise by 180°.
- 2nd. Push the hand rail (2) to the next locking hole.
- 3rd. Allow the locking bolts to snap into place by pulling and turning the bolt handles (1) clockwise by 180°.

The handlebar (2) can be folded completely forward for transport purposes. This gives the uniaxial weed brush a more compact shape.

Folding down requires the following steps:

1. Set the handrail (2) to the highest possible position in the linear guide (see Fig. 10 on page)
- 2nd. Loosen the locking pin by turning the pin handles (1) in the counterclockwise directionsense.
- 3rd. Push up the handlebar (2) so that the locking bolts are above the locking holes.
- 4th. Fold the handlebar (2) forward.
5. Allow the locking bolts to snap into place by pulling and turning the bolt handles (1) clockwise by 180°.

7.3 Overview of the function levers for starting

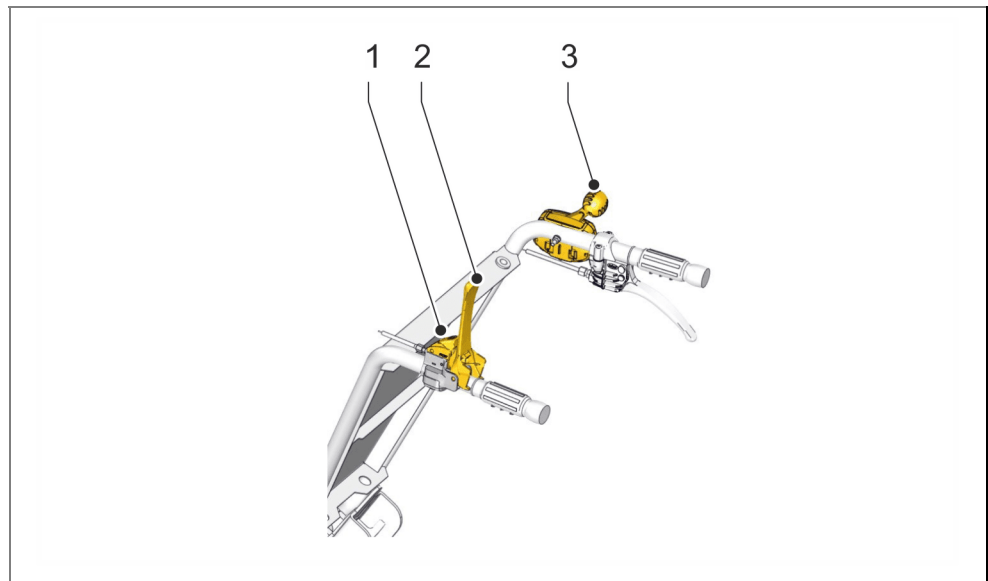


Fig.: Overview of the function levers for starting on the handlebar

- 1 Unlock button for dead man's lever
- 2nd Dead man's lever
- 3rd Throttle

The throttle lever (3) influences the position of the throttle valve of the internal combustion engine. The throttle control (3) thus regulates the engine speed. As soon as the internal combustion engine is in operation, the hydraulic drive of the weed brush can be activated via the dead man device (1 and 2). Then the throttle control (3) controls the speed of rotation of the weed brush. Releasing the dead man's lever (2) does not interrupt the internal combustion engine.

7.4 Internal combustion engines regulate with the throttle

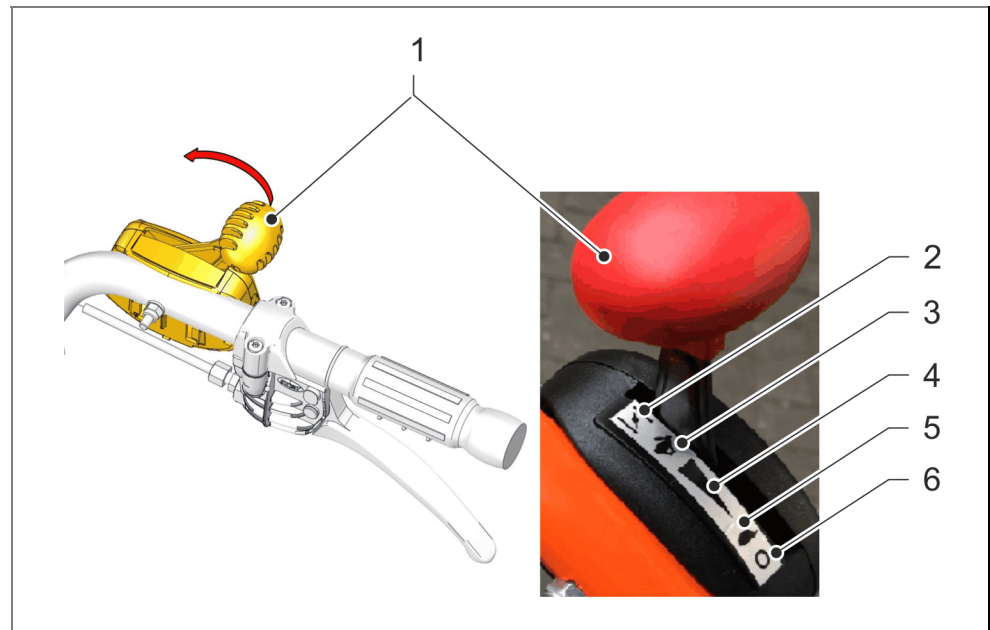


Fig.: Throttle control for regulating the internal combustion engine

- 1 Throttle
- 2nd CHOKE position
- 3rd Maximum speed
- 4th Medium speed range
- 5 Minimum speed
- 6 Exhibition

The speed of the internal combustion engine is regulated by the throttle (1) on the right handlebar grip. In the CHOKE position (2), the engine receives an air-enriched fuel mixture compared to the position in normal operation. In the CHOKE position (2) the engine can be started in a cold state (see chapter 7.5 Prepare the internal combustion engine for starting on page).

If the engine is in operation, you must immediately switch from the CHOKE position (2) to minimum speed (5) and then to the medium speed range (4). If work is interrupted, the engine, which is still warm, can be started immediately at maximum speed (3).

In the OFF position (6), the throttle valve is closed and the internal combustion engine is switched off (see chapter 7.9 Off on page).

7.5 Prepare the internal combustion engine for starting

DANGER



Danger to life or injury from escaping exhaust gases in confined spaces!

Escaping exhaust gases in confined spaces pose a risk of death or injury and damage to the machine.

- The motor must not be operated in confined spaces.
- Do not pre-start the engine kick the uniaxial weed brush.
- Do not use jump-start fluids when using electrical jump-start cables.
- Always ensure adequate ventilation.

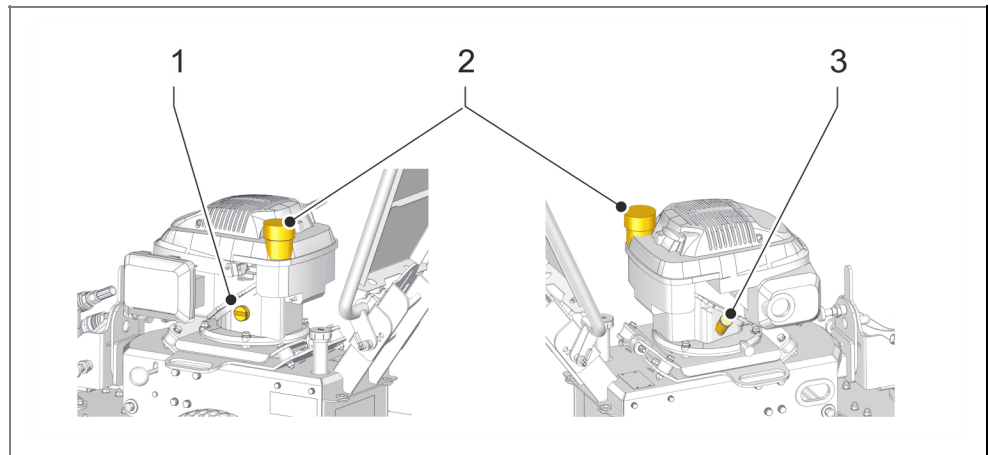


Fig.: Internal combustion engine (exemplary), left and right side view

- 1 Fuel tap
- 2nd Fuel filler neck
- 3rd Engine oil filler neck

The combustion engine of the uniaxial weed brush drives the hydraulic motor to rotate the weed brush.

The following requirements apply to starting the internal combustion engine:

1. The engine oil tank is filled with sufficient engine oil. Otherwise, engine oil must be added via the engine oil filler neck (3).
- 2nd. The fuel tank has enough fuel. Otherwise, refill fuel through the fuel filler neck (2).
- 3rd. The fuel tap (1) is open. Otherwise the fuel tap (1) must be turned to the ON position.

Note: The arrangement of the components varies depending on the engine type installed.



Follow the respective operating instructions of the engine manufacturer to start the engine!

7.6 Start the internal combustion engine

DANGER



Danger to life or injury from escaping exhaust gases in confined spaces!

Escaping exhaust gases in confined spaces pose a risk of death or injury and damage to the machine.

- The motor must not be operated in confined spaces.
- Do not pre-start the engine kick the uniaxial weed brush.
- None Use jump starter fluids when using electrical jump starter cables.
- Always ensure adequate ventilation.

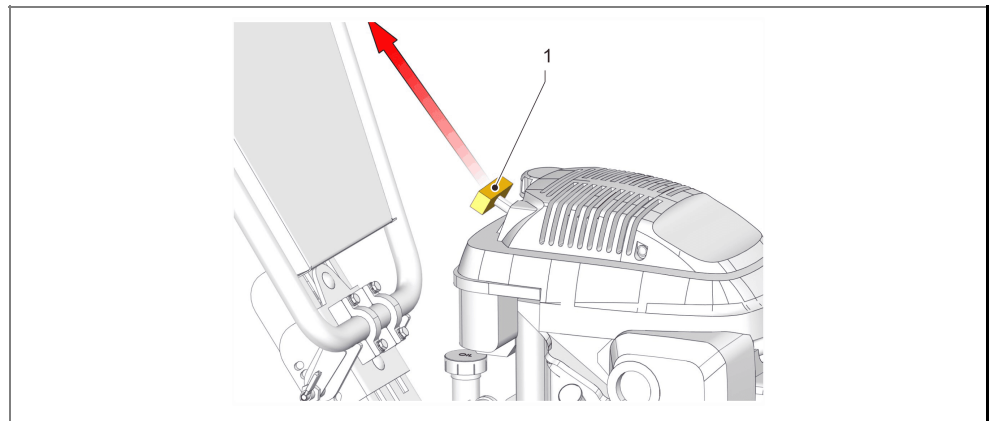


Fig.: Internal combustion engine with reversing starter (exemplary)

1 Reversing starter

The internal combustion engine can be started if the following conditions are met:

- Throttle lever on the handlebar in the CHOKE position or - with the engine warm - in the maximum position.
- Motor is prepared (see chapter 7.5 Prepare the internal combustion engine for starting on page).

If necessary, the internal combustion engine can be started by jerkily pulling the reversing starter (1).



Follow the respective operating instructions of the engine manufacturer to start the engine!

7.7 Weed brush driving with the dead man's device

The hydraulics are driven by the running internal combustion engine. The weed brush only rotates when the drive connection between the hydraulic motor and weed brush is established. This is done using the dead man's device.

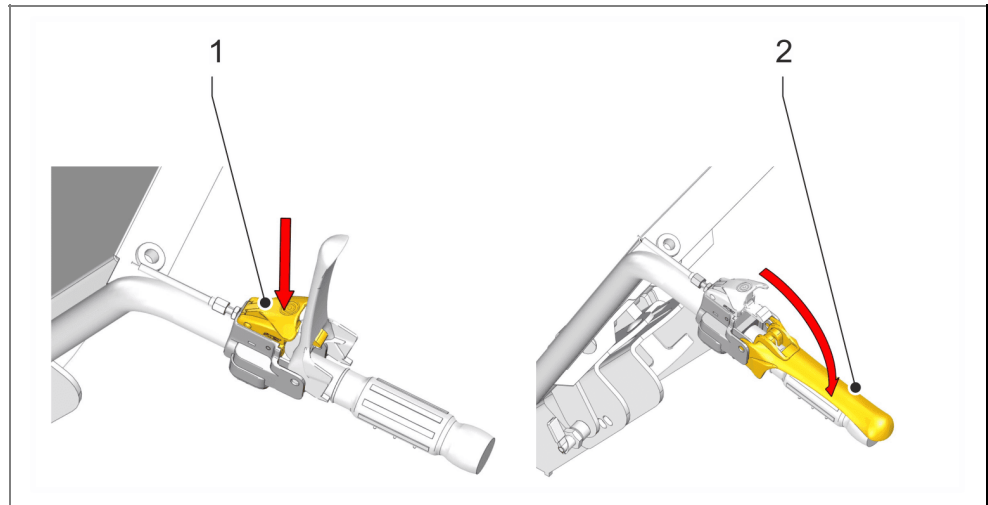


Fig.: Starting the hydraulic drive with a dead man's device

- 1 Unlock button
2nd Dead manlever

With the help of the dead man's device on the left handlebar handle, the drive of the weed brush is activated by the hydraulic motor. The weed brush turns.

The hydraulic drive of the weed brush is accomplished through the following steps:

1. Press the release button (1) for the dead man's lever (2) and keep it pressed.
- 2nd. Slowly press the dead man's lever (2) down and hold it down for the duration of the work.

⚠ ATTENTION



Imminent danger to human health and environmental and property damage.

Risk of injury / danger of environmental damage due to uncontrolled movement of the vehicle!

Uncontrolled propulsion of the vehicle creates the risk of injury and damage to the environment and property (on the machine).

- The dead man lever must not be pressed down quickly.

- 3rd. Release the unlock button (1) for the dead man's lever (2).

The dead man's lever (2) is released in an emergency and jumps back to its original position. This immediately stops the weed brush drive.

⚠ ATTENTION



Imminent danger to human health and environmental and property damage.

Risk of injury / risk of environmental damage due to the weed brush running on!

Despite the interruption of the drive when the dead man's lever is released, the weed brush continues to run for a short time. This overrun creates the risk of injury and damage to the environment and property (on the machine).

- An approach to the weed brush may only after the weed brush has come to a standstill.

NOTE



The internal combustion engine is not stopped by releasing the dead man's lever.

Machine or system damage due to an unintentionally running motor!

The running engine can damage the machine.

- The engine can only be stopped by moving the throttle lever to the OFF position and closing the fuel tap.

7.8 Drive

The uniaxial weed brush does not have its own drive. The operator pushes the vehicle forward on the handlebar.

Safety instructions for driving

For a safe use of the uniaxial weed brush while driving, the following points must be observed in particular:

- Free and level terrain must be selected for the first trip.
- The Switching on the weed brush is only allowed on a free or on an already processed application area.
- Switching on is outside the application area the weed brush is not allowed.
- The weed brush must never be operated when there are children or animals in the work area.

Driving recommendations

- The throttle control regulates the speed of the combustion engine and thus the speed of rotation of the weed brush. The weed brush should be operated at the lowest necessary speed. This protects the material and the environment.
- The Weed brush is switched on or stopped with the dead man's lever. As a result, short sections of the path can be excluded from machining if necessary, without having to throttle the internal combustion engine.

7.9 Off

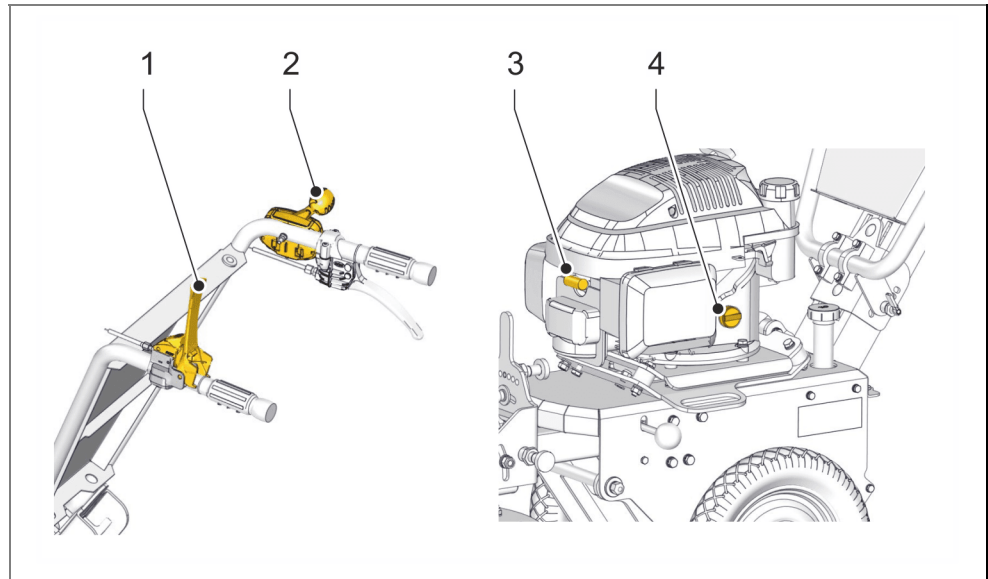


Fig.: Function lever on the handlebar and internal combustion engine

- 1 Dead man's lever
- 2nd Throttle
- 3rd Spark plug connector
- 4th Fuel tap

The following steps must be followed to switch off the internal combustion engine:

1. Release the dead man's lever (1).
- 2nd. Move the throttle lever (2) to the OFF position.
- 3rd. Close the fuel tap (4).
- 4th. Secure the uniaxial weed brush against unauthorized use and, if necessary, pull the spark plug connector (3).

Recommendations when parking

If the combustion engine is not used for a longer period of time, do not switch it off using the throttle (2), but first close the fuel tap (4) and let the engine run until it stops by itself. This means that the carburetor is empty and no gumming can occur. Then move the throttle lever (2) to the OFF position.

7.10 Requirements for optimal weed removal

Recommended settings and conversion to left-hand traffic

The setting of the uniaxial weed brush significantly influences the success of the work. The uniaxial weed brush can be adjusted by the following measures:

- Adjustment of the working height (degree of wear of the tool set)
- Adjusting the height of the splash guard on the weed brush (Terrain, inclination of the brush plate)
- Horizontal alignment of the weed brush (right-hand / left-hand traffic)
- Changing the direction of rotation of the weed brush (right-hand / left-hand traffic)
- Swiveling around the transverse and longitudinal axes of the weed brush, contact point with the ground (right / left traffic, strength of weed growth)
- Positioning the splash guard on the weed brush (Right-hand / left-hand traffic)

The steps for setting the uniaxial weed brush are described below from the chapter 7.11 Set working height on page described in detail.

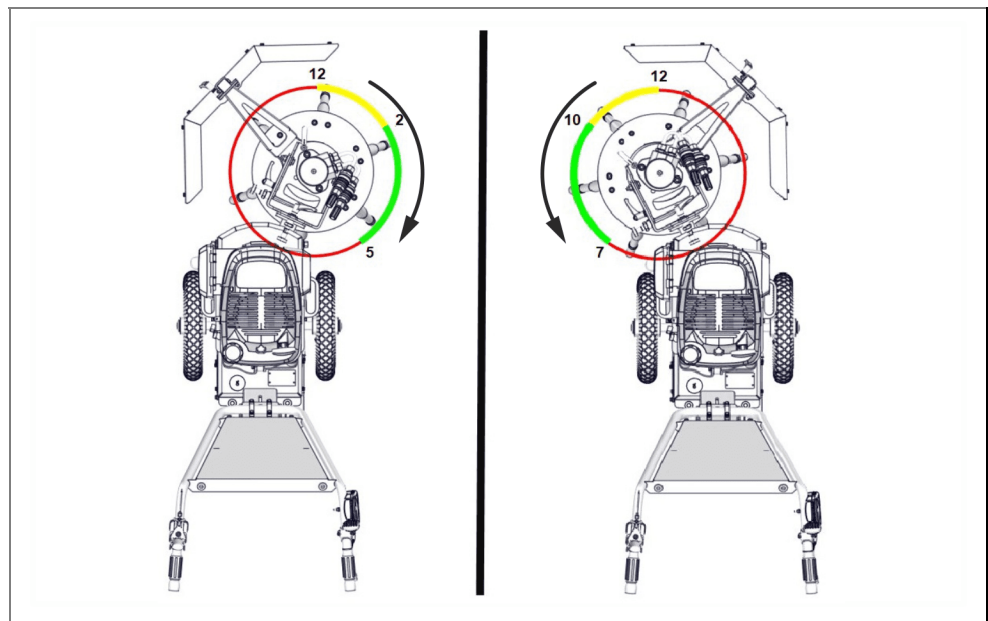


Fig.: Weed brush with splash guard for right-hand traffic (left) and left-hand traffic

Right-hand traffic settings (see Fig. 18, Left):

- Align the weed brush horizontally right-justified.
- Set the direction of rotation clockwise.
- Ideally, set the contact point by swiveling around the transverse and longitudinal axes in the direction of travel between 2 and 5 a.m. (setting between 12 and 2 a.m. satisfactory but not ideal).
- Position the splash guard in the level on the left.

Left-hand traffic settings (see Fig. 18, right):

- Align the weed brush horizontally to the left.
- Set the direction of rotation counterclockwise.
- Ideally, set the contact point by swiveling around the transverse and longitudinal axes in the direction of travel between 7 and 10 a.m. (setting between 10 and 12 a.m. satisfactory but not ideal).
- Position the splash guard on the right level.

Recommendations regarding weather conditions:

- After rain and wet weather, particularly good work results are achieved.
- Weed removal should not be carried out in dry conditions.

7.11 Set working height

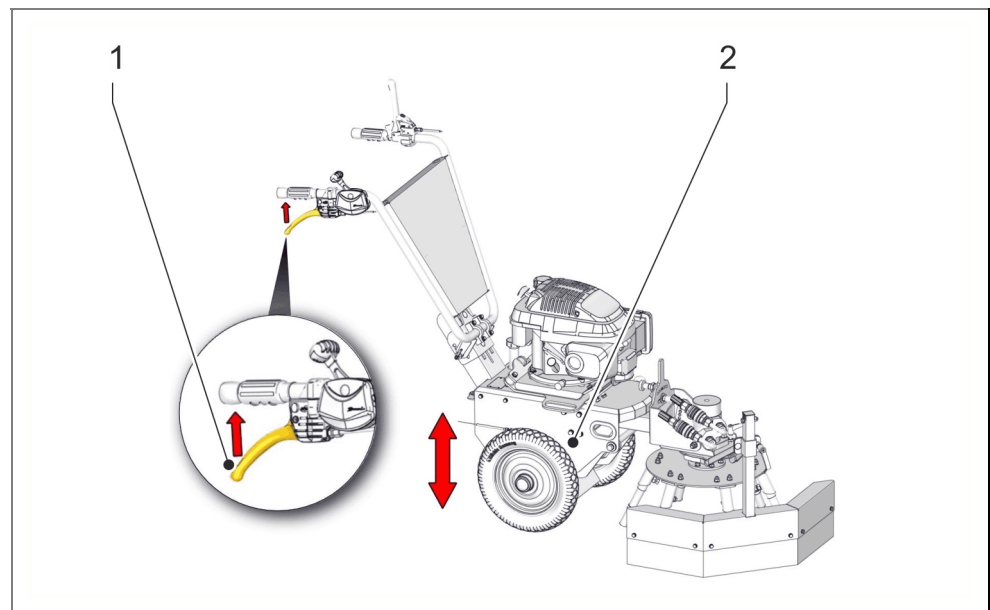


Fig.: Setting the working height

- 1 Control lever
2nd Vehicle frame

The distance between the wheel axle and vehicle frame (2) of the uniaxial weed brush can be changed. This changes the working height of the weed brush, which is connected to the vehicle frame (2). The height can be adjusted at six positions using a locking pin.

The following steps must be carried out:

1. Make sure that the vehicle is on the ground with both wheels.
- 2nd. Hold the vehicle by the handles with both hands.
- 3rd. Loosen the bolt connection by pulling the adjusting lever (1) onto the handle and holding the adjusting lever (1) in this position.

⚠ ATTENTION



The frame is partially decoupled from the axle of the chassis by pulling the adjusting lever.

Risk of injury if the chassis falls unexpectedly!

If the chassis falls unexpectedly when the control lever is pulled, there is a risk of injury and damage to property (on the machine).

- Never lift the vehicle before pulling the control lever. Don't just hold a handle. Only lift or lower the vehicle after pulling the control lever.

4th. Carefully move the vehicle frame up or down on both handles of the handlebar.

5. Release the lifting handle (1) when the vehicle is at the desired height. The bolt is then guided into the desired grid perforation.

When setting the working height, the inclination of the weed brush and the degree of wear of the tooling must be taken into account. Corresponding setting recommendations are in the chapter 7.10 Requirements for optimal weed removal on page given.

7.12 Align the weed brush horizontally

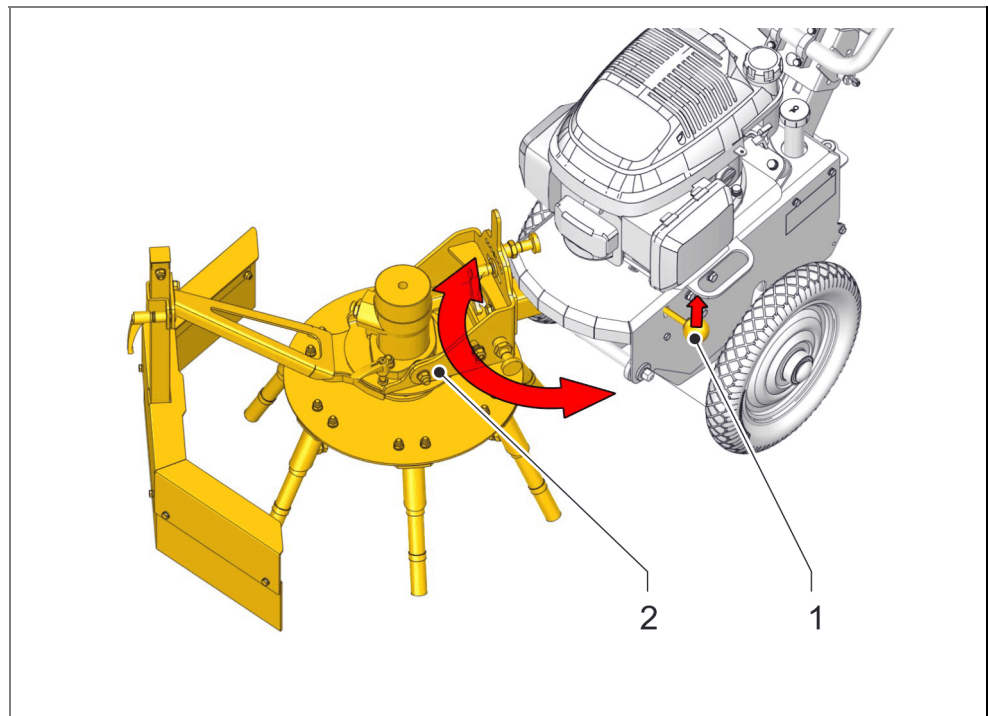


Fig.: Align the weed brush horizontally

- 1 Lifting handle
- 2nd Working head

The weed brush can be aligned horizontally at five positions relative to the axis of the carrier vehicle.

The following steps must be carried out:

1. Loosen the bolt connection by lifting and holding the lifting handle (1).
- 2nd. Swiveling the vehicle around the horizontal axis until the weed brush is at the desired position.
Alternatively: weed brush aHold the swivel head (2) and swivel it.
- 3rd. Let go of the lifting handle (1) so that the pin engages in a grid perforation on the axis.

In this way, the uniaxial weed brush can be switched to left-hand traffic, for example. Corresponding setting recommendations are in the chapter 7.10 Requirements for optimal weed removal on page given.

7.13 Change the direction of rotation of the weed brush

The direction of rotation of the weed brush can be clockwise (standard) or counterclockwise when viewed in the direction of travel.

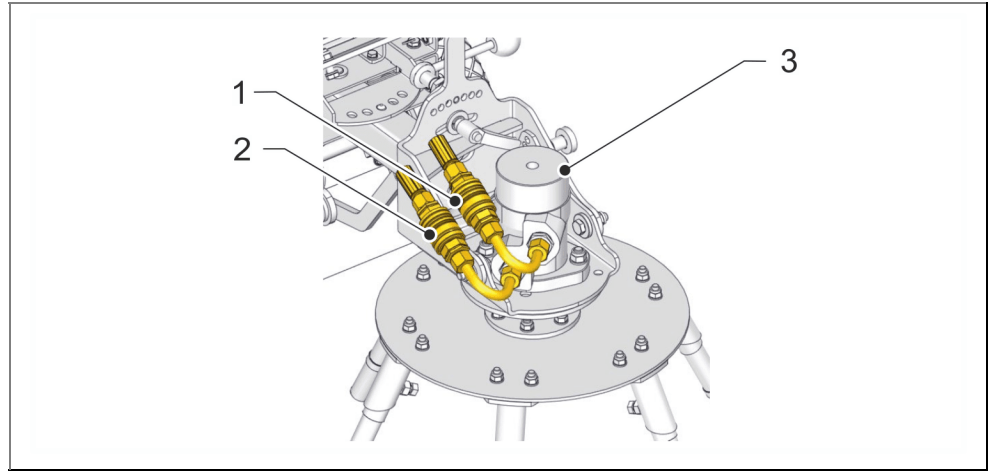


Fig.: Weed brush with hydraulic connections

- 1 Upper quick release hydraulic connection
- 2nd Lower quick release hydraulic connection
- 3rd Hydraulic motor

The direction is changed by swapping the upper and lower hydraulic feed lines to the hydraulic motor (3) of the weed brush. The hydraulic supply lines are disconnected at the top (1) and bottom quick release (2) and swapped back together.

In this way, the uniaxial weed brush can be switched to driving on the left. Corresponding setting recommendations are in the chapter 7.10 Requirements for optimal weed removal on page given.

7.14 Swing the weed brush around the transverse axis

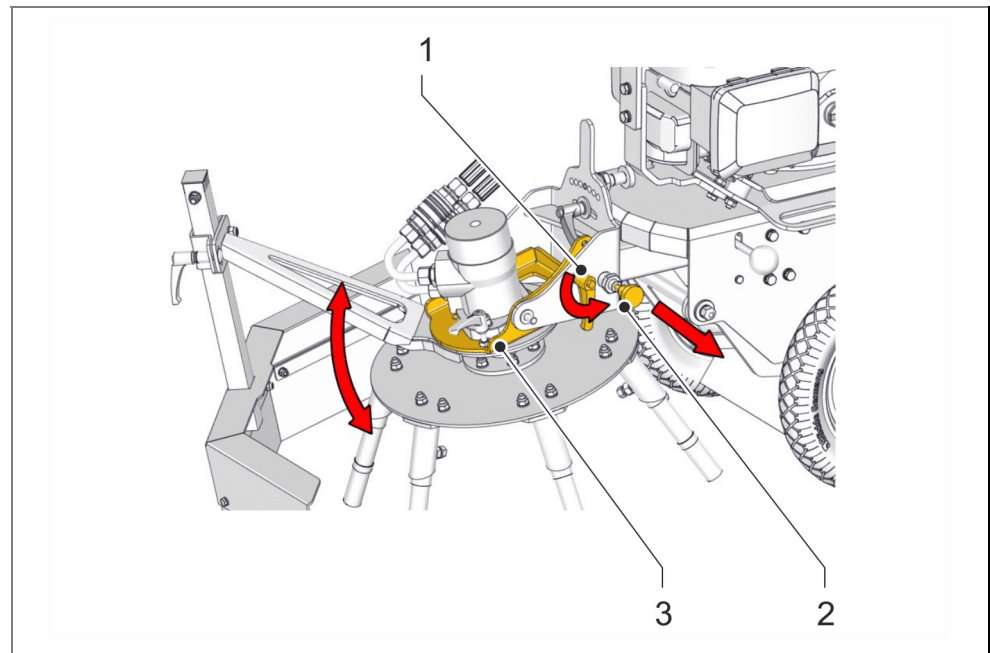


Fig.: Swing the weed brush around the transverse axis

- 1 Clamping lever
- 2nd Bolt handle
- 3rd Brush plate holder

The angle of inclination of the brush plate in the direction of travel can be determined at seven locking positions arranged in an arc.

The adjustment is made as follows:

1. Turn the clamping lever (1) slightly counterclockwise.
- 2nd. Loosen the locking bolt by pulling out and holding the bolt handle (2).
- 3rd. Swivel the brush plate holder (3) until the desired angle of inclination is reached. The brush plate moves around the transverse axis.
- 4th. Release the bolt handle (2) so that the bolt engages in a hole.
5. Tighten the clamping lever (1) clockwise.

By swiveling the weed brush around the transverse and longitudinal axes (see chapter 7.15 Swing the weed brush around the longitudinal axis on page) the point of contact of the weed brush with the ground can be set. The uniaxial weed brush can thus be switched to driving on the left. Corresponding setting recommendations are in the chapter 7.10 Requirements for optimal weed removal on page given.

7.15 Swing the weed brush around the longitudinal axis

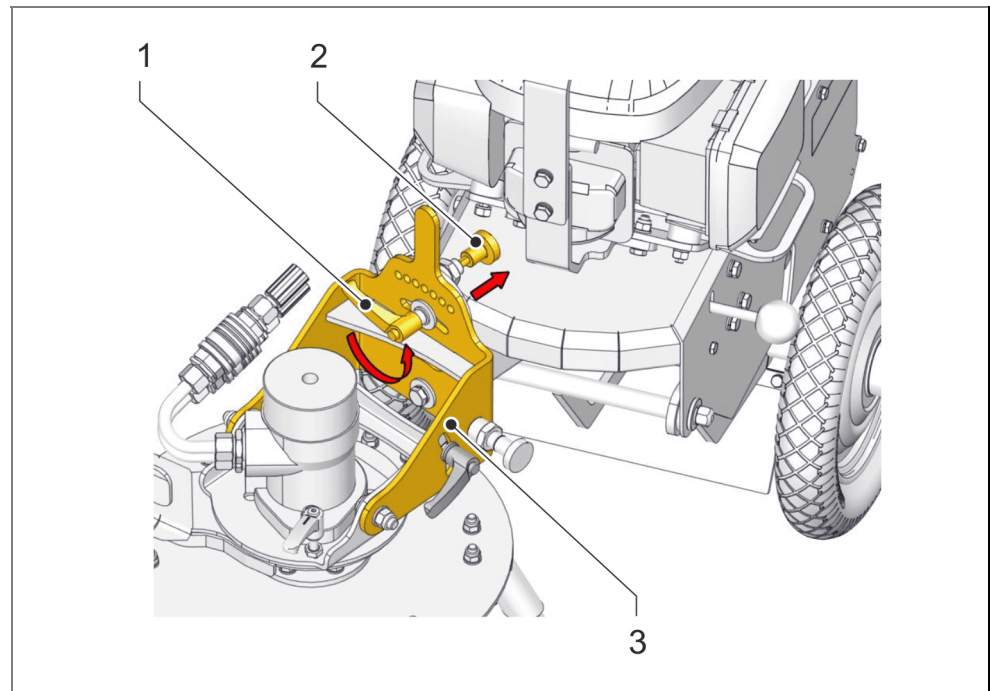


Fig.: Swing the weed brush around the longitudinal axis

- 1 Clamping lever
- 2nd Bolt handle
- 3rd Working head

The angle of inclination of the brush plate transverse to the direction of travel can be determined at seven latching positions arranged in an arc.

The adjustment is made as follows:

1. Turn the clamping lever (1) slightly counterclockwise.
- 2nd. Loosen the locking bolt by pulling out and holding the bolt handle (2).
- 3rd. Swivel the working head (3) until the desired angle of inclination is reached. The brush plate moves around the longitudinal axis.
- 4th. Release the bolt handle (2) so that the bolt engages in a hole.
5. Tighten the clamping lever (1) clockwise.

By swiveling the weed brush around the transverse axis (see chapter 7.14 Swing the weed brush around the transverse axis on page) and the longitudinal axis, the contact point of the weed brush with the ground can be set. The uniaxial weed brush can thus be switched to driving on the left. Corresponding setting recommendations are in the chapter 7.10 Requirements for optimal weed removal on page given.

7.16 Setting the height of the splash guard

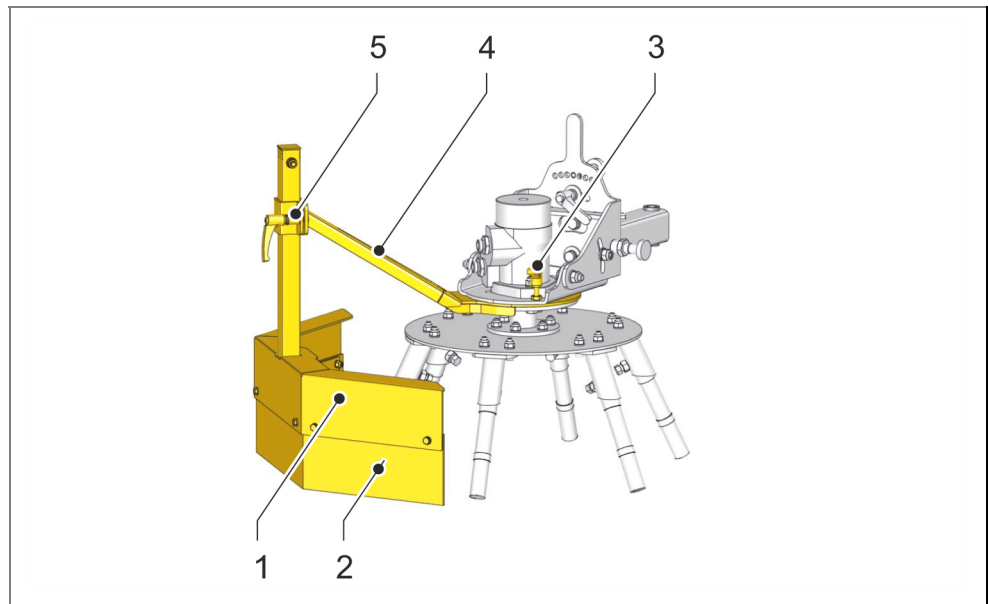


Fig.: Splash guard

- 1 Splash guard frame with signal tape
- 2nd Rubber washcloth
- 3rd Clamping lever on the working head
- 4th Swivel arm
- 5 Clamping lever on the splash guard bracket

The rotary movement of the brush plate throws away materials such as weeds, stones and other objects. A side splash guard (1 and 2) is attached to the machine so that this material does not leave the work area. The spray protection device is fixed to the working head via a swivel arm (4) with a clamping lever (3). Another clamping lever (5) connects the splash guard bracket to the swivel arm (4).

⚠ WARNING



Risk of injury / danger of environmental damage due to incorrectly set splash guard!

If the splash guard is not set correctly, there is a risk of injury and damage to the environment and property (on the machine)!

- The spray gunutz must always be set up correctly

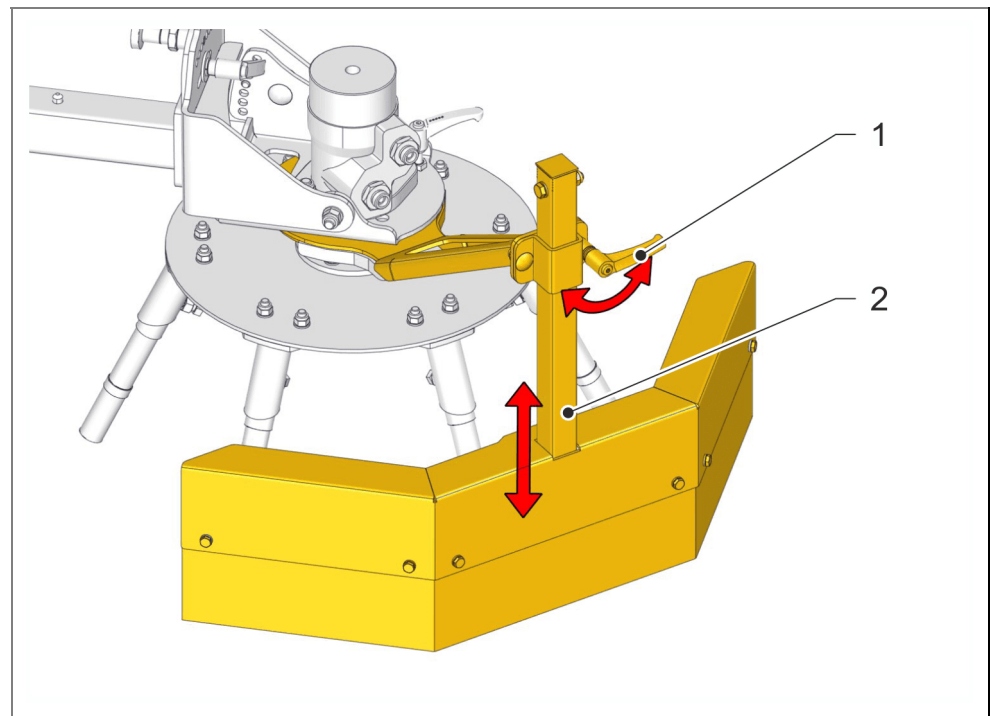


Fig.: Setting the height of the splash guard

- 1 Clamping lever
2nd Splash guard bracket

The procedure for setting the splash guard is as follows:

1. Unscrew the clamping lever (1) counterclockwise.
- 2nd. Move the splash guard bracket (2) up or down in the loosened clamp to the desired position.
- 3rd. Tighten the clamping lever (1) clockwise.

The setting of the height of the splash guard depends on the setting of the brush plate and the local conditions. The rubber splash flap of the splash guard must lie lightly on the floor in the working position.

7.17 Setting the position of the splash guard in the plane

⚠ WARNING



Risk of injury / danger of environmental damage due to incorrectly set splash guard!

If the splash guard is not set correctly, there is a risk of injury and damage to the environment and property (on the machine)!

- The splash guard is always correct to set up

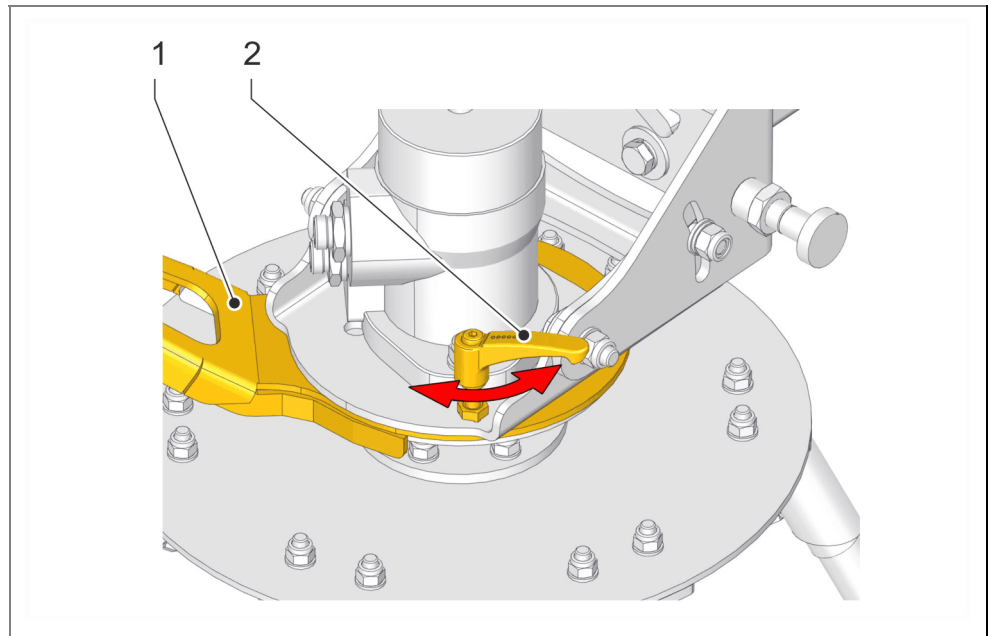


Fig.: Setting the position of the splash guard on the plane

- 1 Swivel arm
- 2nd Clamping lever

The splash guard mounted on the swivel arm (1) can be rotated in the plane.

The procedure for setting the splash guard is as follows:

1. Loosen the clamping lever (2) counterclockwise.
- 2nd. Turn the swivel arm (1) around the vertical axis to the desired position.
- 3rd. Tighten the clamping lever (2) clockwise.

The uniaxial weed brush can thus be switched to driving on the left. Corresponding setting recommendations are in the Chapter chapter7.10 Requirements for optimal weed removal on page given.

8 maintenance

8.1 safety instructions



It is imperative that you observe all the safety instructions listed in the Safety chapter!

(See Chapter 3rd safety on page)

8.2 spare Parts

Wrong spare parts

⚠ DANGER



Danger to life or injury from using the wrong spare parts!

This symbol warns of an immediate danger to the life and health of people.

The use of incorrect or faulty spare parts poses a risk of death or injury as well as property damage to the machine or system!

- Only use original spare parts from the manufacturer or spare parts approved by the manufacturer.
- If not clear our customer service / the customer service of the manufacturer (see Customer service from the manufacturer on page) to contact.

Spare parts procurement

Spare and wear parts must be ordered from customer service (see Customer service from the manufacturer on page) be ordered.

8.3 Maintenance work

8.3.1 Check safety devices for function

Staff:

- Operating personnel

Protective gear:

- Protective clothing
- Protective gloves

The planning, implementation and documentation of tests must be carried out by the operator taking into account the applicable regulations and laws.

To ensure safe machine operation, the safety devices must be checked:

Separating protective devices (covers)	
interval	When starting up, when switching on the machine
scope	Visual inspection for integrity
tester	Operating personnel
Measures in the event of errors	<ul style="list-style-type: none"> • Block the danger area • Repair

Dead man's lever	
interval	When operating the machine, additionally once a year
scope	Functionality
tester	Operating personnel
Measures in the event of errors	<ul style="list-style-type: none"> • do not put into operation • Switch off the motor and secure it against being switched on again • Arrange for maintenance by trained specialists

8.3.2 Daily check

Staff:

- Private and commercial operators

Protective gear:

- Protective clothing
- Protective gloves
- safety goggles

The planning, implementation and documentation of tests must be carried out by the operator taking into account the applicable regulations and laws.

To ensure safe machine operation, the safety devices must be checked:

The following things must be checked on the machine every day:

- Check protective devices for wear and, if necessary, change.
- BrushCheck the elements for wear and replace if necessary.
- BrushCheck the elements for firm seating.
- Damaged brushHave the elements replaced by trained specialist personnel.
- Remove the wrapping around the brush plate (eg wire).
- Check the smooth movement of the moving parts.
- Lubricate the grease nipple before use
- The safety elements and moving parts must be checked for wear before each use.
- Check the hydraulic oil level before each usecheck. To do this, unscrew the cap from the tank and check it visually. The marking on the dipstick must be observed: upper marking means maximum oil level, lower marking means minimum oil level.
- Before every startCheck the engine oil level.
- airCheck filter, (if present) pre-filter and air filter cartridge for dirt and replace them if they are very dirty or damaged.
- Hydraulic connections and lines for leaks and BCheck damage.
- Check the air pressure of the drive wheels.
- Carry out a test run before each use.
- Clean the device after each use.

8.3.3 Maintenance after 20 hours of operation / longer downtime

 **DANGER**



Danger to life or injury from a machine in operation!

A machine that is in operation poses a risk of death or injury as well as property damage to the machine.

- The machine must have been serviced by the Disconnect the energy supply and secure it against being switched on again.

The planning, implementation and documentation of tests must be carried out taking into account the applicable regulations and laws.

The safety devices must be checked to ensure safe machine operation.

All moving parts of the device must be greased or oiled at intervals of no more than 20 operating hours and at the beginning and end of the season.

Lubrication points

Staff:

- Private and GeweColored operators

Protective gear:

- Protective clothing
- Protective gloves
- safety goggles

- The moving parts of the device must be greased or oiled at regular intervals and at the beginning and end of the season.
- Below the There is a grease nipple on the basic device, lubricate it regularly.
- Grease Bowden cables as required or Ölen.
- Hydraulic oilChange and hydraulic oil filter change after 20 operating hours for the first time, then every 100 operating hours. Change the hydraulic oil filter at the same time interval as changing the hydraulic oil. (For the type of oil used, see chapter11 Technical data single-axis weed brush Weedo II on page).
- Clean the engine air filter after 20 operating hours at the latest. Clean after a few hours in very dusty conditions.
- Replace the engine air filter if it is very dirty or damaged.

8.3.4 Maintenance after 100 hours of operation / longer downtime

DANGER



Danger to life or injury from a machine in operation!

A machine that is in operation poses a risk of death or injury as well as property damage to the machine.

- Before carrying out maintenance work, the machine must be disconnected from the power supply and counter Secure again.

The planning, implementation and documentation of tests must be carried out taking into account the applicable regulations and laws.

The safety devices must be checked to ensure safe machine operation.

All moving parts of the device must be greased or oiled at a maximum of 100 operating hours and at the beginning and end of the season.

Lubrication points

Staff:

- Private and commercial operators

Protective gear:

- jobprotective clothing
 - Protective gloves
 - safety goggles
-
- Fan housing after every 100 operating hours or mind. Remove once a year - preferably before the season - and clean the cooling fins on the cylinder and cylinder head as well as the baffles necessary for air circulation, the cooling air strainer and the oil cooler.
 - Hydraulic oil change and hydraulic oil filter change for the first time after 20 operating hours, then every 100 operating hours. Change the hydraulic oil filter at the same time interval as changing the hydraulic oil. (For the type of oil used, see chapter 11 Technical data single-axis weed brush Weedo II on page).
 - Clean the spark plug from soot deposits with a wire brush and then check the electrode gap. The distance between the electrodes should be approx. 1 mm. Replace spark plug after 200 hours of operation.
 - Air filter after 100 bet at the latest clean rubbing hours. Clean after a few hours in very dusty conditions.

8.3.5 Changing brush elements

⚠ DANGER



Danger to life or injury from a machine in operation!

A machine that is in operation poses a risk of death or injury as well as property damage to the machine

- Before changing the brush elements, the machine must be disconnected from the power supply and secured against being switched on again.

Staff:

- Instructed specialist staff

Protective gear:

- Protective clothing
- Protective gloves
- safety goggles

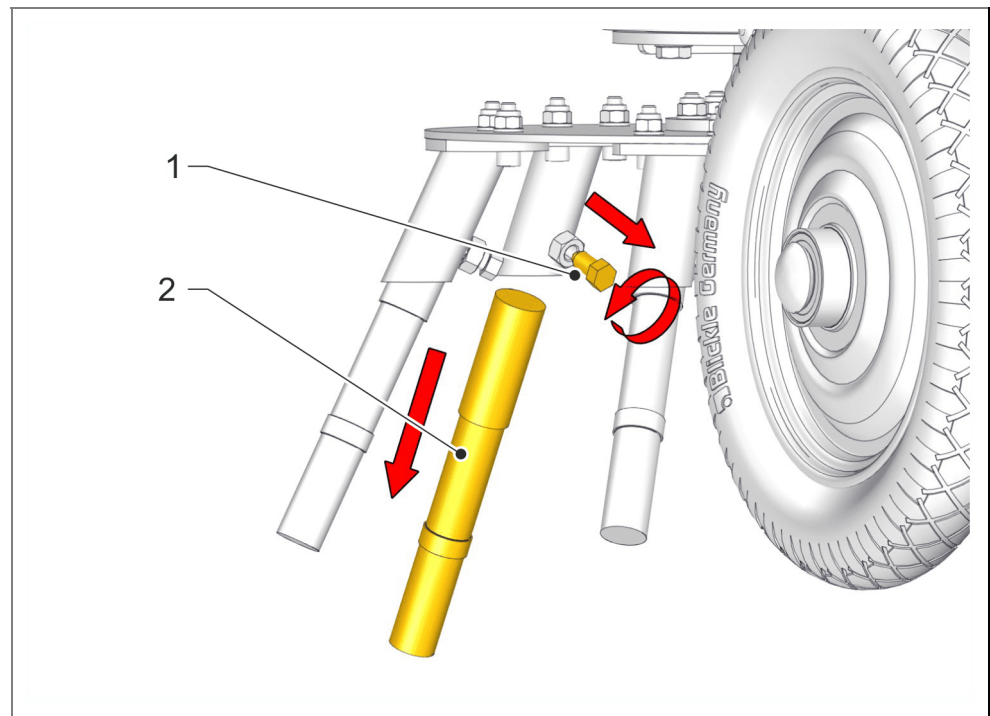


Fig.: Brush elements

1 Clamping screw

2nd Brush element

A brush element (2) is replaced by loosening the clamping screw (1) that fixes the brush element (2) in the brush holder. The brush element (2) can then be removed and replaced.

8.3.6 Change the brush plate

⚠ DANGER



Danger to life or injury from a machine in operation!

A machine that is in operation poses a risk of death or injury, as well as damage to the machine.

- Before changing the brush plate, the machine must be disconnected from the power supply and secured against being switched on again.

Staff:

- Instructed specialist staff

Protective gear:

- Protective clothing
- Protective gloves
- safety goggles

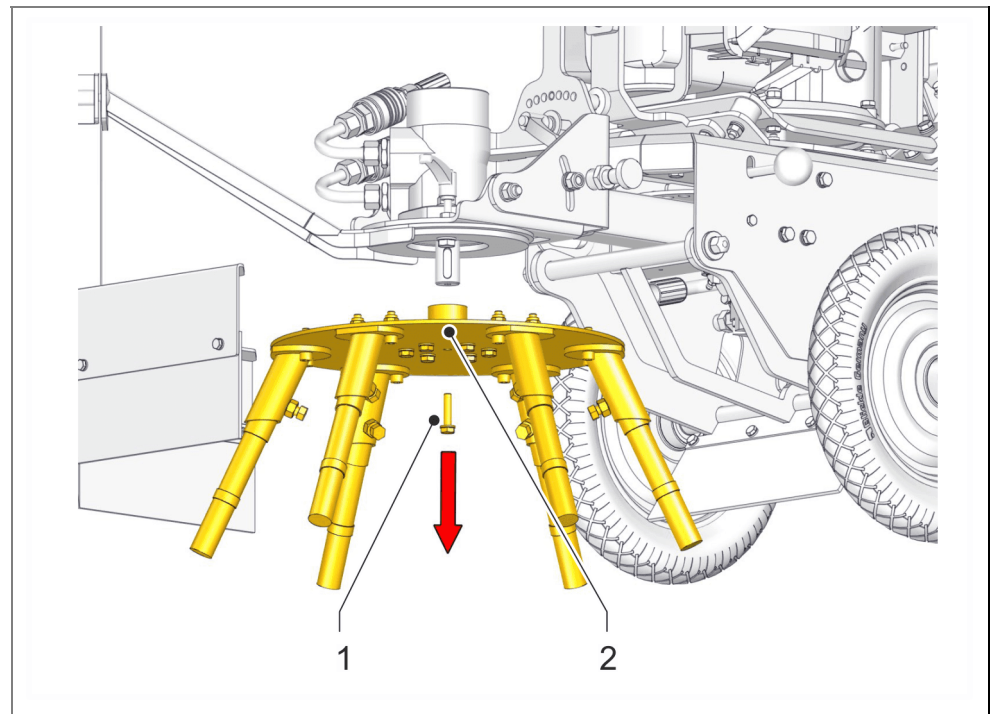


Fig.: Change the brush plate

- 1 Hex bolt
- 2nd Brush plate

The entire brush plate can be changed. To do this, first loosen the hexagon screw (1). Then the brush plate (2) is removed and replaced.

8.4 Measures after maintenance

Staff:

- Private and commercial operators

After completing the maintenance work and before switching on the machine, carry out the following steps:

1. Check all previously loosened screw connections for tightness.
- 2nd. Check that all protective devices and covers that have been removed are properly installed again.
- 3rd. Ensure that all tools, materials and other equipment used have been removed from the work area.
- 4th. Clean the work area and any leaked substances such as B. Remove liquids, processing material or the like.
5. Make sure that all safety devices on the machine work properly.

8.5 Storage

If the machine is not used for a long time, the following steps must be followed:

1. Carry out cleaning
- 2nd. Preserve the engine (observe the instructions of the engine manufacturer!)
 - Drain the fuel completely or fill the fuel tank completely, add the fuel stabilizer to the fuel.
 - Let the engine run for approx. 1 minute
 - Pour a teaspoonful (approx. 30 milliliters) of engine oil into the spark plug opening and then slowly crank the engine.
 - Reinstall the spark plug and do not insert the spark plug connector. Pull the starter handle until you feel the compression resistance, this closes the valves.
 - Crank the engine slowly every 2 - 3 weeks and pull again until the compression resistance is noticeable.
- 3rd. Jack up the drive wheels
 - Use wooden blocks to jack up the machine so that the drive wheels are not on the ground. Pay attention to stability!
- 4th. Assemble the machine
 - To avoid corrosion, protect the machine from the weather. Do not store the machine in damp rooms, fertilizer stores or stables.
5. Cover the machine with a cloth or similar.

9 Disorders / Troubleshooting

The following chapter describes possible causes of malfunctions and the work to eliminate them.

If faults occur more frequently, shorten the maintenance intervals according to the actual load.

In the event of faults that cannot be remedied by the following information, contact the manufacturer.

9.1 safety instructions



It is imperative that you observe all the safety instructions listed in the Safety chapter!

(See Chapter 3rd safety on page)

9.2 Cause of the fault and its remedy

This chapter describes the most important faults that can occur on the implement during operation. Faults that require major intervention must always be remedied by a specialist workshop.

9.3 Malfunction table

Disorder	Possible causes	remedy
Petrol engine does not start	Spark plug connector not plugged in	Put on the plug connector.
	Choke not switched	Bring throttle to choke position.
	Engine off switch on "O"	Set the engine off switch to the "I" position.
	Safety circuit not in the start position	Put the safety circuit in the start position.
	Fuel tank empty or bad fuel	Fill the fuel tank with fresh fuel.
	Clogged fuel line	Clean the fuel line.
	Spark plug defective	Clean, adjust or replace spark plug.
	Engine too much fuel ("flooded")	Dry, clean and start spark plug at full throttle.
	Motor-off line defective	Check cable and plug connections.
	False air due to loose carburetor and intake pipe	Tighten the fastening screws.
Petrol engine has dropouts	Engine runs in the CHOKE area	Bring the throttle control into operation.
	Ignition cable loose	Put the spark plug connector firmly on the ignition cable. Clamp the ignition

		cable attachment. Place the spark plug connector firmly on the spark plug.
	Fuel line clogged or bad fuel	Change the fuel filter or fill up with fresh fuel.
	Ventilation in the fuel tankcover clogged	Replace fuel tank cap.
	Water or dirt in the fuel system	Drain and clean fuel, fill up with fresh fuel.
	Air filter dirty	Clean or replace air filter.
	Carburetor adjusted	Adjust carburetor.
Gasoline engine gets too hot	Too little engine oil	Top up engine oil immediately.
	Cooling air system restricted	Clean fan grille, clean internal cooling fins.
	Air filter dirty	Clean or replace air filter.
	Carburetor not set correctly	Adjust carburetor.
Petrol engine has dropouts at high speeds	Firing interval too short	Adjust the spark plug.
	Idle mixture not set correctly	Adjust carburetor.
Petrol engine often goes out at idle	Ignition interval too large, spark plug defective	Adjust or replace spark plug.
	Carburetor not set correctly	Adjust carburetor.
	Air filter dirty	Clean or replace air filter.
Petrol engine works irregularly	Control linkage dirty, jammed	Clean the control linkage.
The petrol engine does not stop in the stop position	Motor stop line defective	Check cable and plug connections.
	missing sizes	Check ground contact.
Petrol engine underpowered	Air filter dirty	Clean or replace air filter.
	Cylinder head gasket loose or gasket damaged	Tighten cylinder head gasket. Renew gasket.
	too little compression	Have the engine checked.
Brush plate stops or loses performance	Bowden cable loose (dead man's lever)	Have the Bowden cable adjusted (specialist workshop).
	Hydraulic connections loose	Check hydraulic connections for tightness, couplings must be fully inserted.

10 Disassembly, Disposal

10.1 safety instructions



It is imperative that you observe all the safety instructions listed in the Safety chapter!

(See Chapter 3rd safety on page)

10.2 Disassembly

Before starting disassembly:

- Switch off the machine and secure it against being switched on again.
- Physically separate the entire power supply from the machine, saved recharge energy.
- Remove operating and auxiliary materials as well as remaining processing materials and dispose of them in an environmentally friendly manner.

Then clean assemblies and components professionally and disassemble taking into account the applicable local occupational safety and environmental protection regulations.

10.3 disposal

If no take-back or disposal agreement has been made, recycle the dismantled components:

- Scrap metals.
- Give plastic elements for recycling.
- Dispose of other components sorted according to material properties.

ATTENTION



Danger to the environment due to incorrect disposal!

Improper disposal can create environmental hazards.

- Electronic waste, Have electronic components, lubricants and other auxiliary materials disposed of by approved specialist companies.
- If in doubt, obtain information on environmentally compatible disposal from the local municipal authority or special disposal companies.



Components of the machine that are marked with the symbol shown here must never be disposed of with household waste. These components may only be disposed of by specialist companies approved at the place of use.

Lubricants

⚠ ATTENTION



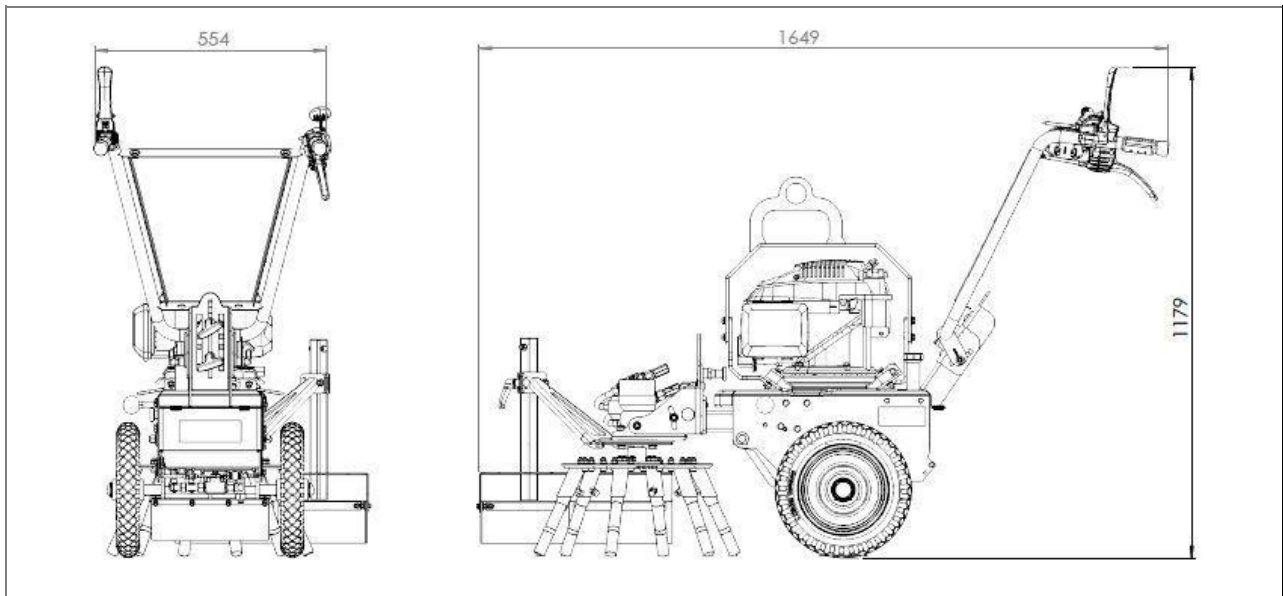
Danger to the environment from lubricants

Lubricants such as fats and oils contain toxic substances. They must not get into the environment.

- Disposal must be carried out by a specialist disposal company.
-

11 Technical data single-axis weed brush Weedo II

11.1 layout



11.2 General technical data

		unit
Type	Weedo II	
Weight	91	kg
length	1650	mm
width	550	mm
height	1180	mm
Handholm	adjustable	
Hand arm vibrations	<2.5 according to DIN EN 12733: 2009	m / s ²
Workspace	approx. 82	cm
Number of tools	6 tufts or wire rope braids	
Drive type	hydraulic	
Hydraulic oil tank	about 3.8	l
Hydraulic oil	Bio-hydraulic oil based on synthetic esters, Avia Syntofluid F46 (recommended)	
Viscosity grade according to ISO	VG 46	
Max. operating pressure	180	bar
Pump delivery volume	approx. 16	l / min
Direction of rotation of brush plate	left or right	
Brush plate speed	about 300	RPM
Tire pressure Wheel 4.00 X4	Guide value 2.0 / max. Tire pressure 2.5 - Risk of explosion!	bar

11.3 Key engine data Weedo II (Honda)

engine	Honda GCV 160 Petrol engine	
Net power	3.3 4.4	kW PS
Max. Torque at the mentioned speed	9.4 2,500	Nm min-1
Displacement	160	ccm
Upper idle speed	3,000	min-1
spark plug	NGK BPR 5 ES	
Motor oil (recommended for general use)	Approx. 0.5 multigrade oil SAE 10W-30 API SJ (or higher)	l
fuel	Unleaded regular or premium gasoline	
Fuel tank	0.9	l
Fuel consumption at the mentioned speed	1.1 3,000	l / h min-1
Air filter	Dry filter element	
Starting device	Reversing starter	

11.4 Engine key figures Weedo II (Briggs & Stratton)

engine	Briggs & Stratton 750EX Series DOV four-stroke single-cylinder engine	
Net power	3.2 4.3	kW PS
Max. Torque at the mentioned speed	9.82 2,000	Nm min-1
Displacement	161	ccm
Upper idle speed	3,000	min-1
spark plug	Champion QC12YC	
Motor oil (recommended for general use)	about 0.6 Multigrade oil SAE 5W - 30 API SJ (or higher)	l
fuel	Unleaded regular or premium gasoline	
Fuel tank	1	l
Fuel consumption at the mentioned speed	1.26 3,600	l / h min-1
Air filter	Paper air filter with foam pre-filter	
Starting device	Reversing starter	

11.5 Declaration of conformity

We the
Kersten Arealmaschinen GmbH
Empeler Strasse 95
D-46459 Rees

explain that the product

Single-axis weed brush

Weedo II

is in compliance with all relevant provisions of the EC Machinery Directive 2006/42 / EC.

The machine is also in compliance with all relevant provisions of the following EC directives:

Low voltage directive	2014/35 / EU
Pressure Equipment Directive	2014/68 / EU

The following standards were also applied:

EN ISO 12100: 2010

EN 12733: 2011

EN 709: 2011

Mr. Dipl. Ing. (FH) Robert Bosch, Empeler Strasse 95, D-46459 Rees,
is authorized to compile the technical documents.

Rees, January 31, 2019



Dipl. Ing. (FH) Robert Bosch
executive Director