

DZC450



This manual contains practical information regarding the use and maintenance of the machine. **Read it carefully and keep the manual in a safe place.**



Please also keep your **purchase invoice** or receipt together with this booklet.



Register your purchase online at **www.eliet.eu**.

© ELIET

Copyright 2020 ELIET. All rights reserved. The texts, images and other information in this manual are protected by copyright and also by other intellectual property rights. As such, no parts of this manual may be used for commercial or other purposes. Certain parts of this manual are also protected by copyright owned by Eliet suppliers.

1. Introduction



1.1. Carefully read this user manual

ELIET machines are designed for safe and reliable use if they are operated in accordance with the instructions provided. Carefully read these operating instructions before using the machine. Failure to do so may result in personal injury or damage to the equipment.

1.2. Identification Data - ELIET DZC450

Copy the identification data of your machine into the text boxes:

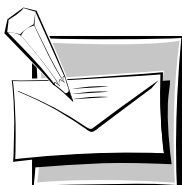
Type number:

Engine:

Serial number:

Year of Manufacture:

2. Warranty



2.1. Machine registration

To be entitled to warranty, the machine has to be registered online within one month after purchase at: **www.elieta.eu**

European customers:

ELIET EUROPE NV

Diesveldstraat 2

8553 Otegem

T (+32)(0)56 77 70 88 - **F** (+32)(0)56 77 52 13

e-mail: info@elieta.eu, www.elieta.eu

Check the warranty conditions (read § 17; page 104)

US customers:

ELIET USA Inc.

3361 Stafford Street

Pittsburgh, PA 15204

Tel +1 412 367 5185 - **Fax** +1 412 774 1970

e-mail: info@elietausa.com, www.elietausa.com

3. Welcome



Welcome to the family of ELIET users.

We thank you for the trust that you have placed in ELIET and we are convinced that you have purchased the very best machine. The operating life of your ELIET machine depends on how you care for your machine. This manual and the engine manual included will help you on your way. Strict adherence to the instructions and suggestions in these manuals will guarantee optimum performance of your ELIET machine for a very long time.

Read this manual carefully before operating the machine. This will prevent you from operating the device incorrectly.

For your own safety, please observe the safety instructions specified in the relevant chapter. Even if you are familiar with operating similar equipment, it is still advisable to read these pages carefully.

All ELIET equipment and machines are continually updated and improved; as such, we reserve the right that the specifications of your machine may differ slightly in terms of shape, technology and accessories. The descriptions and technical data in this manual are valid at the time of publication. Certain illustrations and descriptions may not apply to your specific machine, but instead relate to a different version of the machine. For this reason, we trust that you appreciate the fact that discrepancies or deviations in the texts and illustrations in this manual cannot give rise to any claims. Should you have any questions not fully addressed in this manual, please contact your ELIET dealer. Find an authorised ELIET dealer near you at **www.elieta.eu**.

ELIET AT YOUR SERVICE

During office hours, ELIET's help desk will make every effort to answer all of your questions:

European customers:

GMT +1: from 8 AM to 4 PM

Tel: +32 56 77 70 88

Fax: +32 56 77 52 13

info@elieta.eu

www.elieta.com

US customers:

GMT -5: 8 AM to 5 PM

Tel +1 412 367 5185

Fax +1 412 774 1970

info@elietausa.com

www.elietausa.com

4. Table of Contents

1. Introduction	3
1.1. Carefully read this user manual	3
1.2. Identification Data - ELIET DZC450	3
2. Warranty	3
2.1. Machine registration	3
3. Welcome	4
4. Table of Contents	5
5. Safety symbols	7
6. Main machine parts	8
6.1. Overall view	9
6.2. Handlebars	11
6.3. Engine	11
7. Safety instructions	13
7.1. Safety messages	13
7.2. Safety features	16
7.3. Safety instructions	18
7.3.1. General safety instructions	18
7.3.2. Careful and proper use	19
7.3.3. Operator's responsibilities	20
7.3.4. Personal Protective Equipment (PPE)	21
7.3.5. Ergonomics	22
7.3.6. Danger zone	22
7.3.7. Periodic maintenance	24
7.3.8. Limits of the machine	25
7.3.9. In harmony with nature	25
8. Dealer's responsibilities	26
8.1. Unpacking the machine	26
8.1.1. Structure of the handlebars:	27
8.1.2. Mounting of the rear cover:	30
8.2. Other responsibilities	31
9. Operating instructions	33
9.1. Preliminary checks	33
9.2. Characteristics of the work area	34
9.3. Preparation of the work area	34
9.4. Preparing the machine	38
9.4.1. Machine set-up	38
9.4.2. Refuelling	46
9.5. Starting and stopping the engine	47
9.6. Working with the machine	49
9.6.1. Driving the machine	49
9.6.1.1. Driving	49
9.6.1.2. Turning	50
9.6.2. Planning and determining the track and the work pattern	51

9.6.3. Overseeding.....	52
9.6.4. After overseeding.....	55
9.6.5. Emptying the seed distribution system	56
9.7. Cleaning the machine	57
9.8. Fault diagnosis.....	59
9.8.1. The engine fails to start after periods of inactivity.....	59
9.8.2. Engine shuts off whilst in use.....	60
9.8.3. Loss of grass seed during transport.....	62
9.8.4. Irregular seed pattern.....	62
9.8.5. A trail of damage to the lawn.....	64
9.8.6. Unintended activation from transport or operation mode.....	64
9.8.7. The machine remains stuck in transport mode.....	64
9.8.8. The machine loses traction while driving or operating.....	64
10. Transporting the machine	66
11. Maintenance	68
11.1. General.....	68
11.2. Periodic maintenance schedule.....	69
11.3. Lubricants.....	70
11.4. Routine check before each operation.....	70
11.4.1. Visual check of the state of the machine	70
11.4.2. Checking and topping up the engine's oil level.....	71
11.4.3. Cleaning the air filter	72
11.4.4. Checking the blades.....	73
11.5. Maintenance after every 25 hours of operation	74
11.5.1. General lubrication treatment.....	74
11.5.2. Changing the oil.....	83
11.5.3. Checking and adjusting the belt tension	84
11.6. Maintenance after every 100 hours of operation.....	88
11.6.1. Replacing the blades	88
11.6.2. Replacing the air filter	90
11.7. Maintenance after every 200 hours of operation.....	90
11.7.1. Replacing belts.....	90
11.7.2. Replacing the belt tensioning roller	91
11.7.3. Checking and/or replacing the spark plug	94
11.8. Maintenance after every 500 hours of operation	95
11.8.1. Replacing chains and sprockets.....	95
11.8.2. Chain tightening.....	95
12. Storing the machine.....	96
13. Equipment specifications	97
14. EC Declaration of Conformity	98
15. Appendices	99
15.1. Removing the protective covers.....	99
15.2. Torque for bolts	101
16. Hazards.....	102
17. Warranty conditions.....	104

5. Safety symbols

ELIET cannot anticipate every situation in which a risk or danger can occur. As such, the warnings in this operating manual and the labels on the machine are not comprehensive. Although minimal, some risk will always remain. If you apply a working method, operation or technique as the operator of the machine that is not explicitly recommended by ELIET, ensure in any case that this will not present a danger for third parties.



This manual uses certain symbols ("For your information", "Please note", "Warning") to provide additional information and highlight dangers.

5.1. For your information



For your information: This symbol is used to draw your attention to specific information and/or actions, or it is used to indicate where you can find additional information relating to the topic.

5.2. Please note



Please note: This symbol suggests safe practices. The purpose is to prevent incorrect operation that could result in personal injury or damage to the machine.

5.3. Warning



Warning: This notice warns you of any extreme dangers which you need to take into account in these specific circumstances. So for the sake of your own safety, remain alert at all times.

These safety messages can only warn of dangers, but not prevent them. Using common sense and observing the guidelines contained in this manual are essential to prevent accidents.

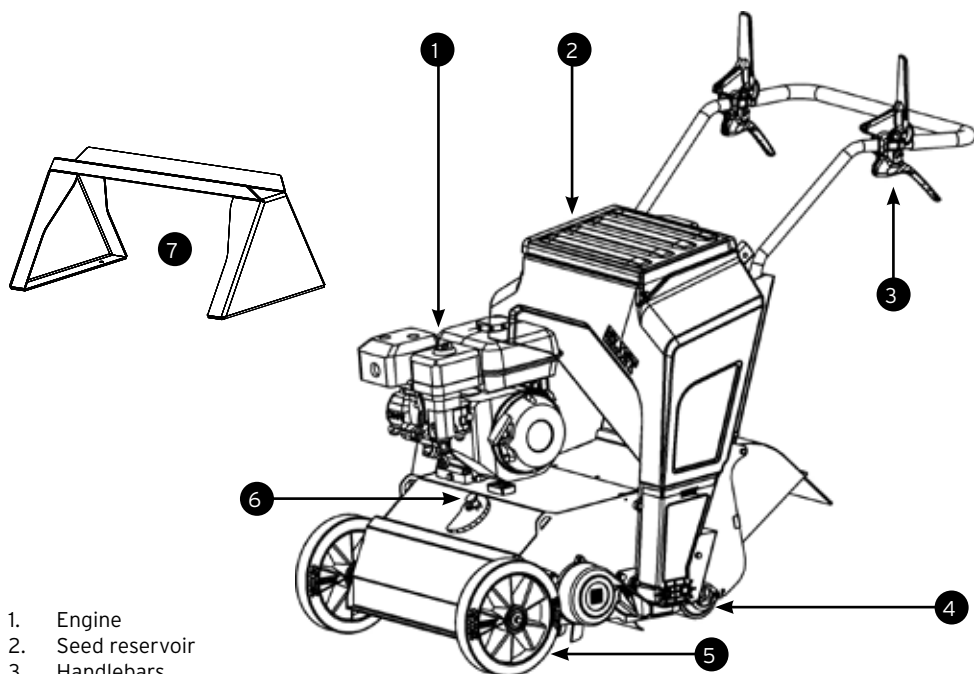
6. Main machine parts



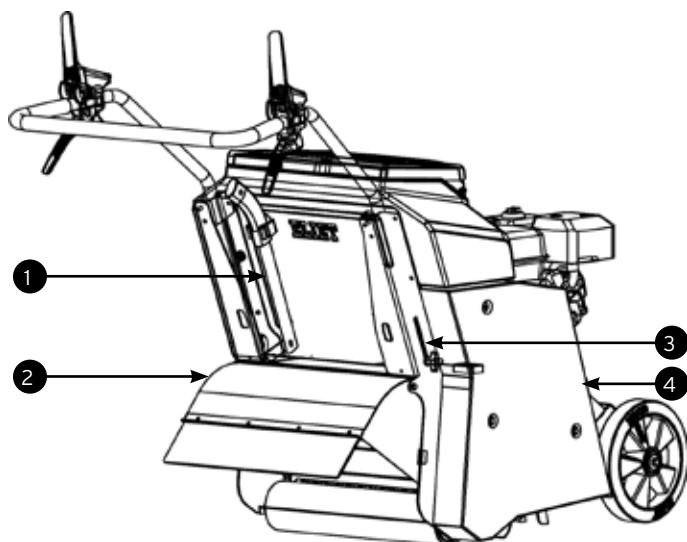
To fully understand the content of this operating manual, you need to be familiar with the terminology used for the descriptions. This chapter refers to a broad range of machine parts and identifies their names. We recommend that you take the time to study the machine prior to use for a better understanding of the descriptions provided in this operating manual.

6.1. Overall view

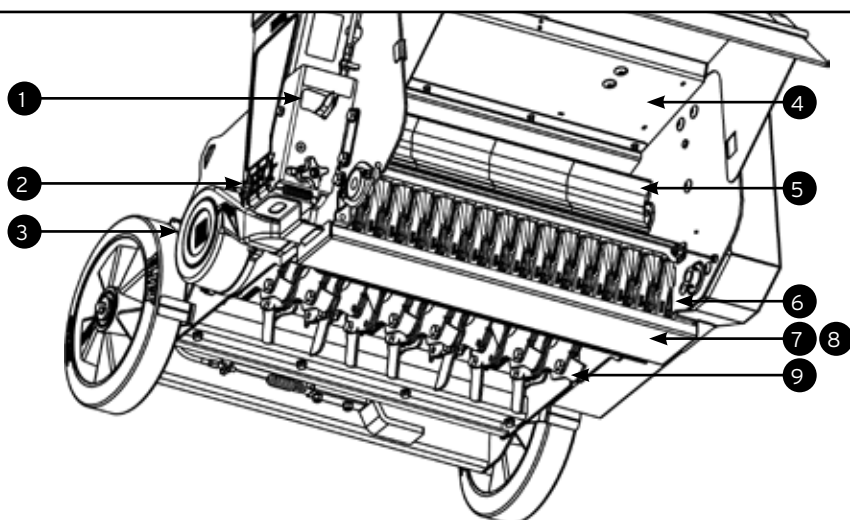
Essential machine parts:



1. Engine
2. Seed reservoir
3. Handlebars
4. Roller
5. Front wheels
6. Depth setting
7. Easy Clean™ maintenance support



- | | |
|------------------|------------------------------------|
| 1. Cleaning tool | 3. Height adjustment of handlebars |
| 2. Rear cover | 4. Protective cover for drives |

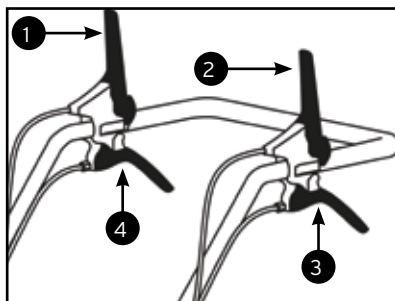


- | | |
|---|-----------------------------|
| 1. Seed flow rate control | 6. Seed strewing funnels |
| 2. Control point Seed distributor drive | 7. Seed distribution system |
| 3. Ventilator with air duct | 8. Seed flow slider |
| 4. Discharge channel | 9. Blade axle |
| 5. Ejector accelerator/Topdress Rotor™ | |

6.2. Handlebars

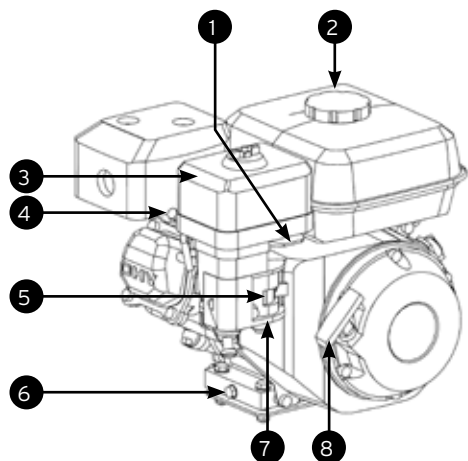
The set-up of the handlebars has a logical sequence. This makes operating the machine even easier.

1. Lever for blade axle activation: blade lever (red)
2. Lever for activating seed distribution system: seed lever (yellow)
3. Lever for releasing work depth (L): depth lever
4. Lever for activating traction (R): traction lever

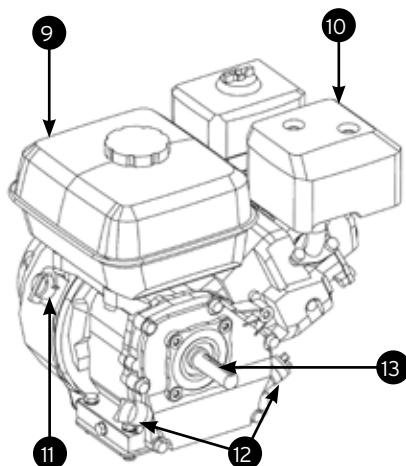


6.3. Engine

6.5 hp HONDA GX200



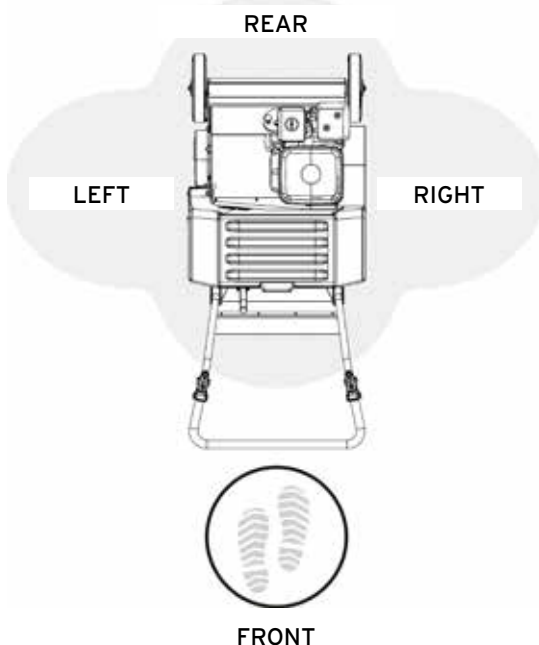
1. Throttle
2. Petrol cap
3. Air filter
4. Spark plug
5. Choke
6. Oil drain plug
7. Fuel valve



8. Starter lever
9. Petrol tank
10. Exhaust
11. On-off switch
12. Oil filler cap/dipstick
13. Crankshaft



For your information: All references to front, rear/back, left and right in this manual are from the viewpoint of the operator steering the machine.



For your information: Your authorised ELIET dealer remains at your service for any maintenance or advice, so that your ELIET machine is always in perfect condition. You can contact him/her for original ELIET parts and lubricants at any time. These machine parts are manufactured according to the same strict rules and craftsmanship as the original equipment.



For your information: '§ 11. Maintenance on page 68' provides an overview of the maintenance requirements for this machine and advises you on maintenance requiring the assistance of an authorised dealer.



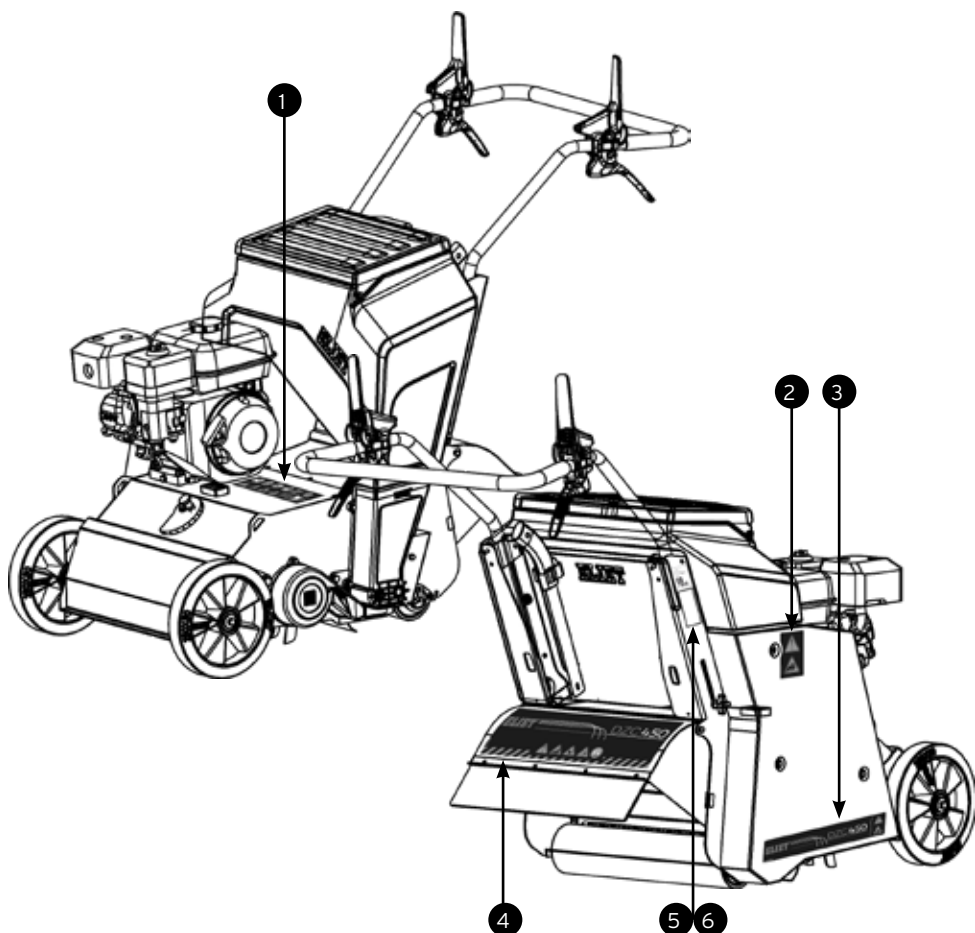
Please note: For your own safety, only original HONDA or ELIET parts may be mounted onto this ELIET machine.

7. Safety instructions



7.1. Safety messages

The safety messages are clearly indicated on the machine with stickers or relief pictograms. Please take note of the pictograms and safety messages displayed.





1. This sticker is attached onto the top plate of the housing. This is a central place on the machine that is always clearly visible to the operator when they want to start the engine. The sticker collects a number of important instructions for the operator:
 - The manual should be read and understood before operating the machine.
 - Suitable safety clothing (safety goggles, gloves, ear protection) must be worn whenever and wherever it is required.
 - Working with or performing maintenance on the machine poses the possible risk of cuts to hands and feet. Be attentive and careful.
 - Bystanders must keep a safe distance.
 - It is prohibited to clean the machine using a high-pressure cleaner.
 - Cleaning is essential after every use. A drawing also explains how to use the special "Easy Clean™" maintenance support.
 - The sticker notifies the operator that the engine must be turned off and the spark plug cap removed before performing maintenance.

This sticker bears order code: BQ 505 010 650



2. This sticker is affixed to the side of the cover near one of the fixing bolts. This sticker warns of the danger of pinching, cutting or bruising fingers if they are caught by the drives shielded by the cover. The engine must always be switched off before the protective cover is removed. The machine must never be operated if the protective cover has not been fitted correctly.

This sticker bears order code: BQ 505 010 660



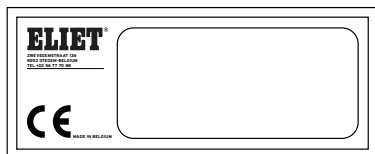
3. This sticker is also affixed to the side of the protective cover. The sticker hangs on the underside where the blades rotate. The sticker warns of the danger of injuries if someone approaches this area with their hands or feet. A safe distance must be maintained.

This sticker bears order code: BQ 501 490 030



4. This sticker is affixed to the rear cover. The black-yellow shading draws attention to this risk zone. The pictograms warn of a number of dangers in the area behind the anti-projection cover and of the risks associated with lifting it:
 - There is a risk of injury from dirt, sand and stones being ejected through the outlet channel.
 - Via the outlet channel, there is access to the blade area and other rotating elements that can cause injuries to the hands or feet.
 - Sturdy safety shoes must always be worn.
 - Eyes must always be protected with safety goggles.

This sticker bears order code: BQ 501 490 020



5. Identification sticker

This sticker is attached to the right hand side of the machine body. It contains the machine's identification data:

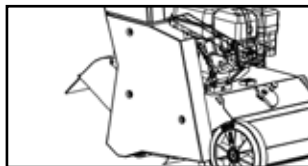
- Model
 - Model no.
 - Serial no.
 - Year of manufacture
 - Engine
 - Capacity
 - Weight
 - Guaranteed A-weighted noise level $L_w(A)$:
- This sticker also includes information on the manufacturer. The CE label confirms that the machine is in compliance with the applicable European machinery directive.

6. This label is applied to the right hand side of the machine body. The figures on it represent the guaranteed noise level $L_w(A)$ produced by the machine under normal operating conditions. This sticker bears order code: BQ 505 112 101



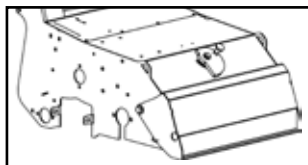
Please note: If due to cleaning or use, safety stickers or parts displaying safety information have been damaged, removed or become illegible, they must be replaced immediately. Stickers and parts can be obtained from your authorised ELIET dealer.

7.2. Safety features



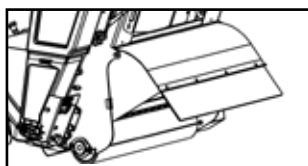
Protective cover for drives:

All moving parts are safely shielded by the fixed protective cover. The machine must never be operated if the protective cover has not been fitted correctly.



Robust construction:

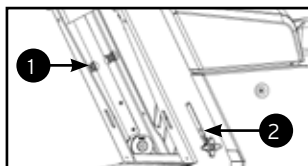
The robust construction is testimony to the sustainability of the machines and offers a guarantee for the operator's safety in the event of unforeseen circumstances.



Rear cover:

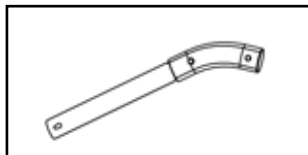
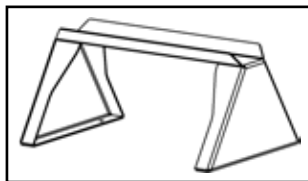
This cover is located at the end of the outlet channel at the rear of the machine. This cover deflects the projection flow to the ground, minimising the risk of injury to operators and bystanders. The cover must be fully closed during operation.

The rear cover has been developed in such a way that when it is opened, part of it ends up in the projection path, thus partially absorbing the projection. This offers protection for the operator.



Height adjustable and anti-vibration handlebars:

In order to minimise harmful effects on joints and the nervous system in the event of prolonged exposure to vibration, the handlebars have been fitted with an anti-vibration **(1)** suspension. In addition, the handlebar is height-adjustable **(2)** so that the operator can always adopt the most ergonomic working position and thus minimise the strain on their back.

**Easy Clean™ maintenance support and cleaning tools:**

For easy and safe maintenance of the machine, ELIET supplies two tools with the machine. By placing the machine on the maintenance support, it can be tilted backwards to safely carry out inspection or cleaning work.

The Clean Tool makes it possible to scrape away persistent dirt in places in the blade chamber and keep a safe distance from the blades.



Warning: Never attempt to bypass or disable the safety features. The safety measures were designed for your safety. Before using the machine, the operator should check that the safety features work properly. Any defects must be repaired prior to using the machine.

7.3. Safety instructions

7.3.1. General safety instructions



Warning: Most accidents are caused by carelessness or reckless behaviour.

- The owner of the machine must keep this manual during its complete service life. It serves as a reference guide for the user so that he or she can use and maintain the machine in accordance with the correct instructions. Always refer to this instruction manual if you have any doubts regarding an action that you are about to perform.
- If the instructions stated in this manual are not clear to you, do not hesitate to contact your ELIET dealer for further explanation. In addition, the ELIET help desk is at your service during office hours to answer any questions you may have (EU +32 56 77 70 88 or USA +1 412 367 5185).



For your information: Please also read the engine manual supplied with the machine. It contains useful tips about proper use and maintenance of the engine.

- Also read the chapter which is intended for the dealer (read § 8; page 26) and verify whether the machine has been supplied in accordance with the instructions.
- Carefully observe all safety instructions when using this ELIET machine. Make sure to read all the instructions about how to operate the machine. All these instructions are for your own safety.
- Get advice from the dealer or another professional when purchasing the machine before using the machine yourself.
- Read and observe all safety messages indicated on the machine in the form of text or pictograms. (read § 7.1; page 13)
- Always observe the applicable regulations of the Labour Inspectorate to avoid accidents.
- Under no conditions whatsoever may the original design of the machine be modified without written consent of ELIET EUROPE NV (Belgium).

7.3.2. Careful and proper use

The purpose of the machine is to renovate and rejuvenate an existing lawn. This is done by removing any unwanted vegetation in the lawn and injecting new grass seeds into it. The effect is a considerably higher proportion of young and healthy grass, giving your lawn a better appearance and increased resistance.

In this respect, the machine combines several functions that are performed in a single operation:

I. Creating a seed bed:

- Routing grooves in the soil. A depth between 8 and 10 mm (0.3" and 0.4") is recommended.

II. Sowing:

- Dosed scattering of the lawn seed. The Helix Seed Duct™ conducts the seed below the projected stream of residual dirt and distributes it precisely above the routed grooves through small pipes.
- Injecting the seed through the air generator.

III. Finishing the seed bed:

- Closing of the grooves and compression of the soil around the grass seeds via a back roller.
- Application of a protective layer by ejecting the projected residual dirt on top of the sown area.



Please note: this machine is not intended for soil cultivation and must therefore be used only for the above-mentioned application.

- It must never be used to work on sites that do not comply with the soil characteristics.
(read § 9.2; page 34)
- Think about every action you perform with the machine. Do not be tempted to become inattentive. Never act impulsively or on reflex.
- Despite the extensive safety features, do not risk any hazardous situations.
(read § 16; page 102)
- Only operate the machine in a forward travelling direction.
- The machine must never be used as a means of transport for people or heavy loads. Nor must it be used to pull or drag objects.
- The machine must never be used on pastures, only on existing ornamental lawns.
- It is not recommended to work on dry ground.
- The machine must not be used on frozen ground.
- The machine is intended for outdoor use. It must not be used in a closed or poorly ventilated area. There is a risk of intoxication due to exhaust fumes.

- Before starting work, the lawn must be thoroughly inspected for foreign bodies and obstacles (sprinkler nozzles, pit covers, edging and stepping stones, pegs, rocks, etc.). These must be removed. Consult the owner of the terrain regarding buried objects (electric cables, fuel or gas pipes, control cables, zone marking for robot mower, rocks, water pipes, irrigation systems, drainpipes, foundations, war ammunition, tree roots, etc.). These zones must be clearly marked and protected to prevent them from being driven over during the work.



For your information: ELIET declines all liability for damage resulting from improper blade settings or damage to buried objects.

- Avoid lawns that contain stones. Choose the slowest operating speed where necessary and reduce the blade depth. Stay alert, if you come across a large stone, immediately lift the machine in transport mode to pass the obstacle.



Please note: the maximum working depth of the machine is 32 mm (1"). Every obstacle in the top layer of the soil therefore constitutes a risk of damage or breakage of the blade system.

- When the blades are operating and the machine has been set to work depth mode, the operator must only work in straight lines, or as straight as possible. In this set-up, turning or making short turns is not possible without damaging the turf or damaging the blades.
- All animals must be removed from the working area.
- All ropes and wires used to attach the machine during transport must be completely removed before driving or operating the machine.
- Never work when light intensity is below 500 Lux.
- Use the machine in an environmentally-friendly manner:
 - Avoid letting the machine idle without operating it.
 - Avoid spilling petrol while refuelling.
 - Service the engine regularly in order to maintain optimum combustion.

7.3.3. Operator's responsibilities

- All persons using the machine are assumed to be familiar with the safety instructions. **They are fully liable for the use of the machine with regard to themselves and third parties.**
- The operator of this machine is assumed to be responsible enough, and with enough common sense, to make decisions by him or herself.
- The operator must only use the machine when it is in good condition. They must also ensure that the operating elements have not been intentionally deactivated or fixed in one position.
- The operator may only use the machine if they know all the risks and are able to protect themselves and bystanders from such risks.
- The operator may only use the machine after reading the operating manual and correctly understanding and applying the instructions.

- The machine must not be operated by minors. However, this does not apply to people over the age of 16 who are learning to operate the machine under the supervision of an experienced user. This manual must be read before use.
- Children (under 16 years of age) and animals should be kept at a safe distance (10 m (30ft)) from the machine. Never allow third parties to come within a 10 m (30ft) radius of the machine.
- ELIET advises against lending the machine to others. Should this nonetheless be the case, the machine should only be lent to persons who are familiar with it. **Always make sure that the user is aware of the potential hazards and ensure that he/she reads the manual before using the machine.** (read § 16; page 102)
- When transferring operation to another user the transferring operator must ensure that they are wearing the appropriate clothing and equipped with the necessary personal protective equipment. They must check that the operator is familiar with the usage instructions. They must advise the operator until they become familiar with operating the machine.
- This machine must only be operated by persons who are not tired and in a good physical condition. Take a rest if you become tired whilst operating the machine.
- The machine must not be operated by those who are tired or under the influence of medicine, alcohol, drugs or other substances affecting the mind.
- Do not leave the machine unattended while in use. Always shut off the engine when leaving the machine unattended.
- Overseeding requires physical effort that demands the concentration of the operator. It is therefore advisable to take sufficient breaks as well as adequate food and drink.
- Persons with heart problems and/or balance impairments are advised not to operate the machine.



Warning: A moment of inattentiveness or carelessness can lead to lifelong regret.

7.3.4. Personal Protective Equipment (PPE)



For your information: Personal protective equipment helps to reduce the risks the operator is exposed to.

- The person operating this machine must wear suitable clothing. This means clothing covering the entire body, which is not loose and which properly covers the body, protective gloves and closed footwear.
- When working with an ELIET overseeder, the feet are exposed to the greatest risk. For protection of the most sensitive senses, ELIET recommends work shoes.



Warning: It is prohibited to wear open shoes or sandals during operation.

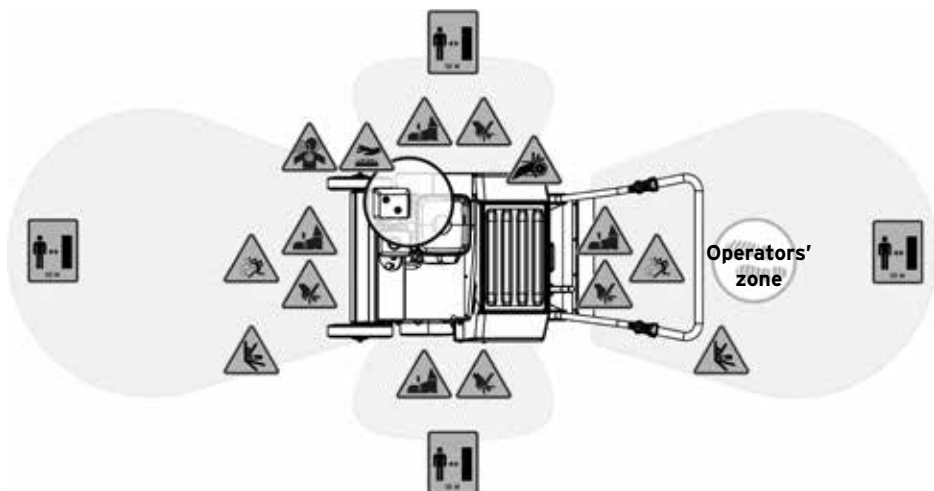
- Gloves must be worn to protect the hands.
- To protect eyesight and hearing, ELIET recommends hearing protection and safety goggles.
- Especially in warm and dry weather, a lot of dust can be generated during ground works. ELIET recommends using a dust mask if this agitates your respiratory passages (masks should comply with the 89/686/EEC standard).
- Operators with long hair must keep it tied back with a cap or headband.
- If the sun dazzles the operator, they must wear sunglasses or a cap to maintain a clear view.

7.3.5. Ergonomics

- Make sure to wear shoes with a proper sole that provide sufficient support.
- Adjust the handlebar to a height that creates a comfortable working position.
- To turn the machine, raise the front of the machine by pushing the handlebars downwards. Adjust the steering height in such a way that you can use your body weight as much as possible to raise the machine. This will relieve the arm and back muscles.
- The seed reservoir can hold approximately 50 L of grass seed, therefore choose adapted seed reservoir volumes for filling the seed box (10 kg - 22 lbs). That way, back complaints are avoided when these bags are manipulated.
- A special maintenance support was supplied with the machine (Easy Clean™). When raising the machine with the traction roller into the maintenance support, this must be done with the back upright and maximum strength from the leg muscles.
- Whenever possible, use the drive when moving or loading the machine. That way, overexertion of the muscles or joints can be avoided.

7.3.6. Danger zone

The image below shows the position of the operator and the machine's danger zone:



- The operator zone is situated behind machine with both hands on the handlebar. This is where there is best access to the operating elements giving control over the machine.
- Never allow bystanders within the danger zone - a circle of 10 m (30ft) around the machine - while working.
- Children and animals must be kept well away from the machine at all times.
- In addition, when driving the machine, never allow people within a 10 m (30ft) radius. Bystanders may get their feet under the machine and be severely injured. A bystander can get trapped between the machine and an obstacle.
- Do not take risks! If anyone enters the danger zone, stop the blade and wheel drive immediately.
- The machine is intended for outdoor use. It must not be used in a closed or poorly ventilated area. There is a risk of intoxication due to exhaust fumes.
- Once the blades are switched on, there is a risk of projection via the outlet channel, but also at the front of the machine. So always be careful when switching on the blades. Never let the blades run longer than necessary.
- Shut off the engine when leaving the machine unattended.
- Once the engine is running, focus all your attention on operating the machine.
- Protective covers are intended to shield off dangerous areas to avoid accidents. It is therefore strictly prohibited to operate the machine or to activate the engine or any drive when protective covers are removed.
- Even when the engine is switched off after work, the exhaust and engine remain hot for about ten minutes. Contact can cause burns. Therefore, never allow bystanders near the engine.
- Do not park the machine on a steep slope. The machine may still start to move due to gravity. This can cause damage or injury.
- Never remove nor deactivate safety protection.



Please note: Since wearing hearing protection can impair the ability to hear warning sounds (such as yelling, signal tones, etc.), increased alertness is required under these circumstances. ELIET advises against using a GSM, smartphone or a portable MP3 player while operating the machine.



Please note: Repair, maintenance and cleaning work must only be carried out with the engine turned off and the spark plug cap decoupled.



Please note: In some regions a machine with a combustion engine may not be used on unimproved unwooded, woody or grassy land unless the exhaust is fitted with a spark catcher. Check the local regulations before using the machine.



Please note: due to the inertia of the weight of the blade axle, the blades will continue to rotate for a few moments after being switched off. As a precaution, wait at least 1 minute after switching off the blades before carrying out any maintenance.

7.3.7. Periodic maintenance

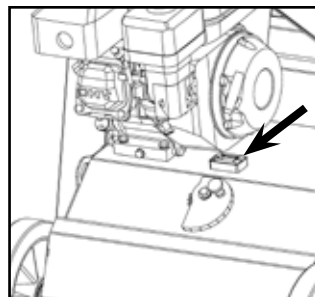


For your information: For your own safety and in the interest of preserving the life of the machine, this machine should undergo regular maintenance.



Please note: Wear the appropriate protective clothing and equipment when carrying out maintenance

- Always read the chapter in this manual on maintenance (read § 11; page 68) before carrying out maintenance.
- Before use, always inspect the machine to check that all machines parts are in good condition. The engine revolution rate must be set correctly.
- The machine must be cleaned after every work session.
- After every work session, carry out an inspection to check that there has been no damage to the blades. Damage to these components can cause serious injury to the operator or bystanders, as well as damage to property.
- Periodic maintenance is essential. Strictly follow the maintenance schedule included in this operating manual (read § 11.2; page 69) . An hour counter helps you keep track of the hours of operation of the machine. This can be ordered as an option.
(order number: BE 412 410 000)
- If parts require replacement due to wear or failure, always contact your ELIET dealer and request original ELIET replacement parts. This is important for your own safety (find an official ELIET dealer near you at www.eliyet.eu)
- Repairs and maintenance work may only be carried out with the engine switched off.
- Take the machine for an annual general service to your authorised ELIET service center.
- Maintenance work also requires full attention. All elements that can cause distraction should be avoided:
 - Avoid bystanders in the work area
 - Do not wear headphones with music or radio
 - Avoid TV screens with a moving image
 - Switch off smartphones to avoid being distracted by messages or calls.



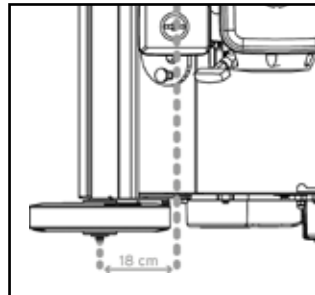


Please note: repair, maintenance and cleaning work must only be carried out with the engine turned off and the spark plug cap decoupled.

7.3.8. Limits of the machine

- ELIET recommends a maximum work depth of 8 to 10 mm (0.3" to 0.4"). In view of your own safety and a long life span of your machine, increasing the work depth is not recommended.
- The DZC450 should not be used at low temperatures or in frost.
- The machine weighs 125 kg - 276 lbs*. Keep this in mind during transport.
- The minimum passage width is 68 cm (27").
- When the work depth is set correctly, the blade action zone is 18 cm (7") behind the front wheels.
- The strewing zone of the grass seeds of the blades is 45 cm (18") behind the front wheels.
- The distance between the support point of front wheels and traction roller is 55 cm (22").
- The track width of the front wheels is 61 cm (24").
- The height of the handlebar is adjustable between 90 cm (35") and 100 cm (39") measured from the base.

(*) = weight of the machine with an empty seed reservoir.



7.3.9. In harmony with nature

Use the machine in an environmentally-friendly manner:

- Avoid running the machine unnecessarily without using it.
- Avoid spilling petrol while refuelling.
- Oil leaks in the engine or transmission should be repaired immediately.
- Service the engine regularly for optimum combustion.
- Any waste materials resulting from performing maintenance on the machine should always be disposed of properly and in their designated place either for recycling or other environmentally-friendly processing.

8. Dealer's responsibilities

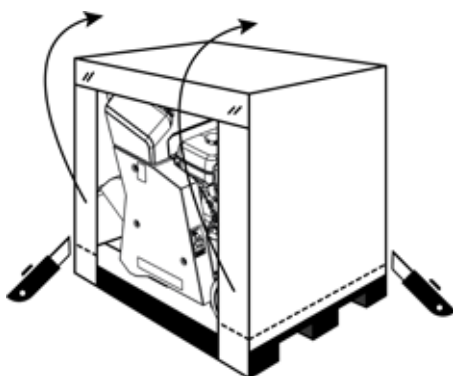
8.1. Unpacking the machine

ELIET machines are packaged in accordance with standard rules for proper transportation.



For your information: Deliveries are always ex works. Consequently, ELIET cannot be held liable for any damage that occurs during transport.

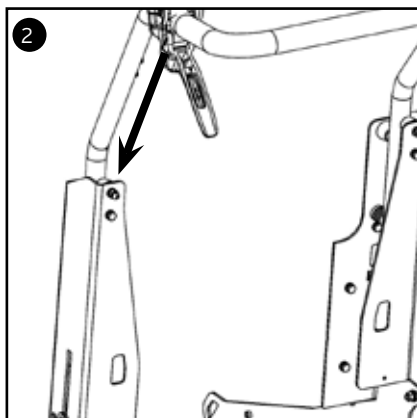
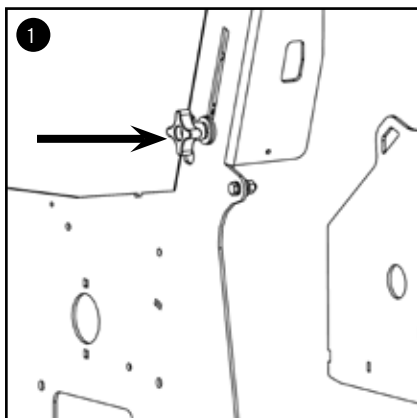
- If the packaging is damaged upon receipt of the goods, check the state of the machine to ensure it is not damaged. Report any irregularities on the delivery slip before signing for receipt.
 - In the event of damage to the machine, a complaint to the shipping company must be submitted immediately after delivery.
 - Before opening the packaging, check that the information on the label affixed to the box corresponds to what is stated on the delivery slip and to what was ordered.
 - In the event of discrepancy, contact the ELIET representative immediately to report this.
 - After checking the packaging, the machine should be unpacked.
 - The machine is attached to a wooden pallet. It is enclosed with a carton sleeve to protect the contours of the machine. An opening is provided on each long side so that operators in the logistics process can assess the content and weight distribution before lifting and moving the package. The carton sleeve is wrapped with transparent film to protect the machine.
 - Start by removing the transparent film. Via the openings in the sides it is already possible to conduct a visual check of the state of the machine.
 - In order to easily remove the carton sleeve, cut the box on each side just above the pallet.
 - Remove the sleeve sideways at an angle, to expose the machine.
 - The box contains the following elements:
 - Machine
 - Manual
 - Easy Clean™
 - Cleaning tool
 - A bag with fasteners
 - Stickers for flow adjustment with overseed*
- * subject to the applicable partnership with the seed supplier in the region.



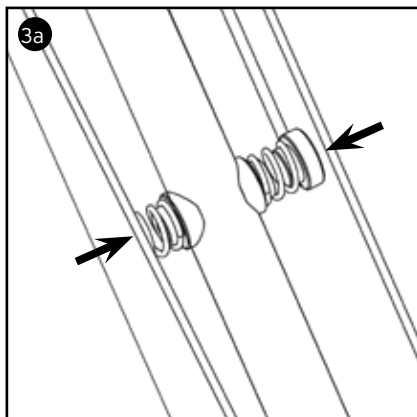
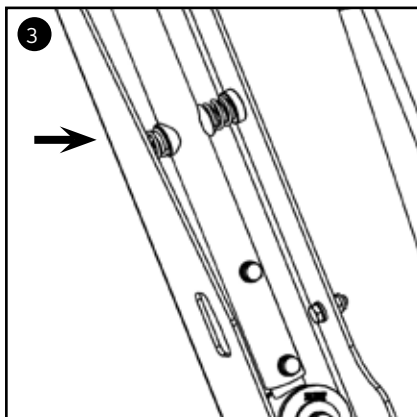
In order to compactly package the machine, it has not been fully assembled.

8.1.1. Structure of the handlebars:

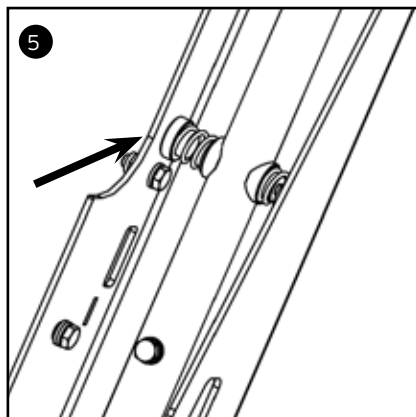
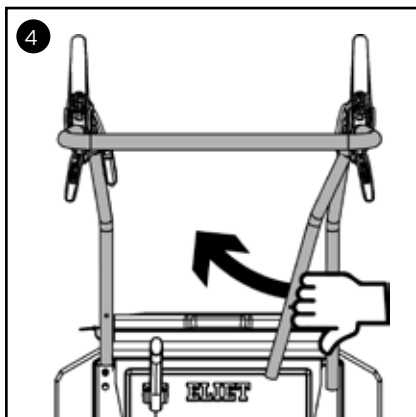
1. Disassemble the two hinge axes on each side of the steering bracket. To do this, completely remove the star knob for the height adjustment.
Spray some lubricant (PFTE-based) on the inside of the steering bracket along the length of the slot opening. This will make the handlebars easier to adjust in height.
2. Then insert the left-hand steering tube into the cavity of the left-hand steering bracket.



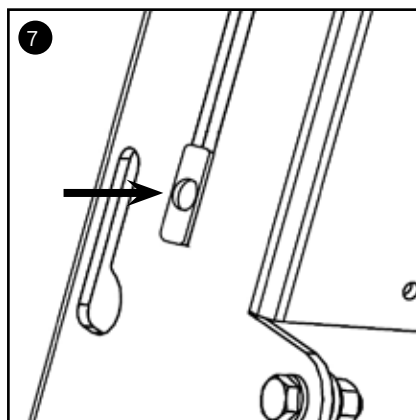
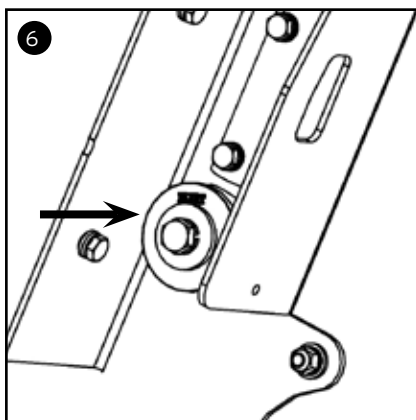
3. Place the two compression springs and inserts for the anti-vibration system on the seat on the steering tube.



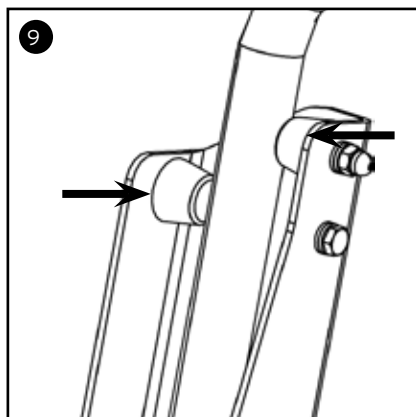
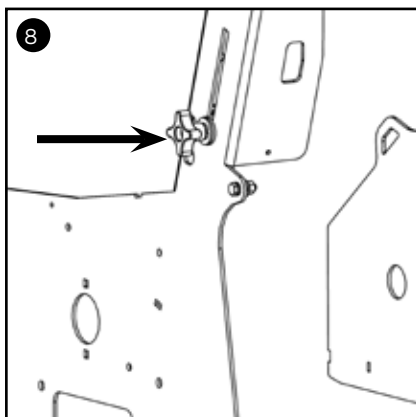
4. Now push the right steering tube to the left. Due to its elasticity, it bends inwards in such a way that it can also be placed in the cavity of the right-hand steering bracket.
5. Also with this second tube, place the compression springs and inserts on the seat around the right-hand steering tube.



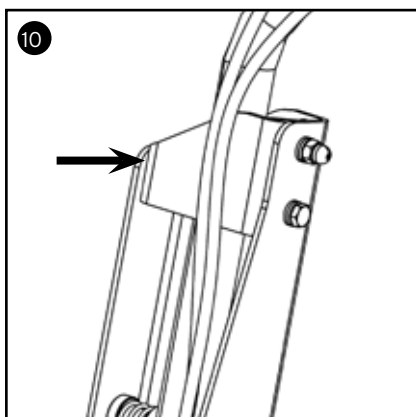
6. Place the hinge axles in the two hinges at the bottom of each tube end.
7. Turn the axle so that the rectangular bulge fits into the long slot of the steering bracket.



8. Place the nylon washer, metal washer and bolt with the star knob which were disassembled in step 1 and screw them clockwise into the pivot axis to attach the handlebars to the steering bracket.
9. Now unscrew the rubber pads at the top of each steering bracket so that a gap of 5 mm (0.2") is created between the steering bracket and the base of the pad. To do this, use a ring wrench 10 to loosen the M6 fixing nuts in a counter-clockwise direction.



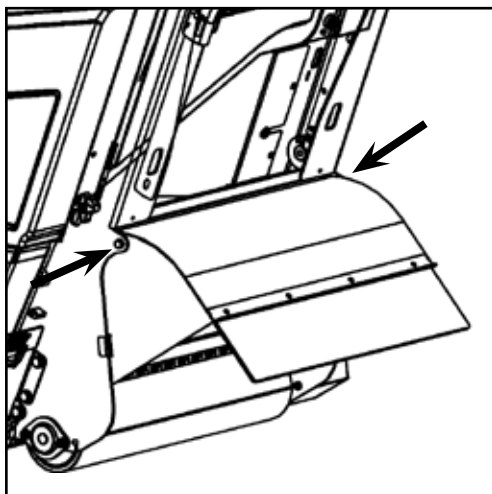
10. The supplied steering plates can now be slid in between the pads and steering bracket at any time. Please note: make sure that all cables are on the outside of the steering plate and are not trapped in the cavity of the steering bracket.



11. Insert the attachment bolt (M6 x 12) in the hole and screw it into the steering plate (ring wrench 10).
12. Then tighten the M6 nuts of the rubber pads again.

8.1.2. Mounting of the rear cover:

1. Unscrew the bolts from the back cover.
2. Position the rear cover at the rear of the machine and reassemble it by tightening the bolts.



Now that the handlebars and rear cover have been fitted, the machine can be driven off the pallet.

The machine is locked in place by wedges against the wheels. Push the handlebars downwards to lift the front wheels. Keep the wheels suspended and then push the machine forward until the roller collides with the front wedges. Now lower the wheels to the ground. Raise the handlebars so that the traction roller comes loose from the pallet. Keeping the machine raised at the rear, continue driving it on the front wheels until you can also place the traction roller on solid ground.

8.2. Other responsibilities

- The dealer is responsible for preparing the machine for use, before supplying it to the end user.
- The fuel tank will be filled (read § 9.4.2; page 46)
- The dealer checks whether there is oil in the engine and tops this up if necessary. (read § 11.4.2; page 71)
- Every ELIET dealer warrants the long operating life of your ELIET machines. They will fully lubricate the machine. All hinging and friction surfaces will be greased. Chains, bearings and cables are lubricated. (read § 11.5.1; page 74)



For your information: check the list for the correct lubricant (read § 11.3; page 70)

- The dealer must check that the engine RPM setting is at 3,500 RPM.
- The dealer must make a final test drive and check that all devices are working properly.
- The dealer must check that all safety features work perfectly. (read § 7.2; page 16)
- The dealer will set the correct work depth. (read § b; page 40)
- The dealer will calibrate the seed flow rate according to the selected seed mixture. (read § c; page 42)



Warning: As an ELIET dealer you **must** familiarize your customers **with the operation of the machine** and also **point out the possible dangers** while using it. You are expected to carefully go over the maintenance points of the machine together with the new owner. Repeat these instructions until the new owner has fully understood all points.

Important information for the new owner at the time of delivery:

- The dealer will explain how to adjust the depth and what the optimum work depth is.
- The dealer will explain how to adjust the seed flow rate and how to check this.
- The dealer must familiarise the new owner with the machine's operation.
- The dealer will give practical tips on working efficiently with the machine.
- The dealer will clearly explain that the lawn must be mown prior to sowing, and thoroughly scarified and tidied up.
- The dealer will expressly point out that after use, the seed tray and the seed distribution system must be emptied. They will demonstrate how to do this.
- The dealer will point out that the machine needs to be cleaned after use and will demonstrate how to use the Easy Clean™ and cleaning tools.
- They must also inform the new owner of potential hazards.
- The dealer will draw the new owner's attention to the fact that they should check the tension of all bolts after the first 5 hours of operation.
- The dealer must stress that the machine should be returned for its first service after 10 hours of operation (drive belt tightening and first oil change are required).
- The dealer will indicate the points that require regular lubrication.



Please note: The dealer must point out that the new owner should register their machine at **www.elieta.eu** to maintain their right to the warranty. The dealer must ensure that the warranty card is filled out and signed. This is to avoid any warranty disputes. Please read the warranty conditions for more details.

9. Operating instructions

9.1. Preliminary checks



Please note: Before starting the work, it is recommended to get into the habit of checking the following points:

Checklist

- Check the total number of hours the machine has operated and compare this to the maintenance table. Perform maintenance as necessary. (read § 11.2; page 69)
- Perform a visual inspection of the condition of the machine (read § 11.4.1; page 70)
- Check the oil level. Pull out the dipstick and check whether the oil level is below minimum (read § 11.4.2; page 71)
- Check in advance that the fuel tank is full. If not, top it up (read § 9.4.2; page 46)
- Check the air filter for excessive dirt. Clean if necessary.
(read § 11.4.3; page 72)
- Check the blades for wear (read § 11.4.4; page 73)
- Check that the belt tension is adequate. If not, it can be adjusted.
(read § 11.5.3; page 84)
- Check that the blades are not bent. If necessary, straighten the blades again.
- Check that the flow setting of the machine is correctly adjusted. (read § c; page 42)
- Check that the machine has been cleaned and there is no dirt or accumulation in the housing at the blade axle, ejector accelerator and outlet channel.
- Check that the seed funnels at the seed distribution system are clear.
- Check whether the depth has been set correctly. (read § b; page 40)
- Check that all protection covers are present and properly in place.
(read § 15.1; page 99)
- Check that all safety features on the machine are still operating properly.
(read § 7.2; page 16)
- Check whether the engine operates at the given rotational speed (3,500 RPM) Never attempt to change the default engine settings. Install the optional hour counter, this has a built-in revolution counter, making this easy to check.
(art. code: BE 412 410 000)

Once these points have been checked and approved, the work area can be prepared (read § 9.3; page 34) and the machine can be moved onto it.

9.2. Characteristics of the work area

To avoid damaging the machine and to guarantee a quality result of your work, the terrain operated on must meet several conditions:

- The machine must only be used on ornamental lawns. Ornamental lawns are: a landscaped lawn consisting of a non-contaminated soil densely covered with grass, possibly with a small proportion of low-growing herb (such as moss, clover, dandelion, daisy, clover, etc.), which is mown regularly once or twice a week.
- Meadows are excluded from the working terrain of the machine.
- The machine cannot be used on a hybrid lawn (half artificial grass / half natural lawn).
- The grass must have been cut to a maximum length of 2 cm (7/8").
- The base of the ornamental lawn must be level and not contain bumps bigger than 2 cm (7/8").
- Preferably, the soil must not contain any stones above a depth of 3 cm (1.2"), or any other contaminants.
- Foreign objects lying on the lawn (stones, rope, electrical cables, wire, branches, etc.) must be removed before starting the machine.
- The soil of the lawn must not be frozen.
- Working on dried out soil under the lawn is pointless, and should be avoided.
- Working on a terrain that is wet and soggy after heavy rainfall should be postponed.
- The lawn must be thoroughly scarified before sowing. Clean the turf after scarifying, so that the soil is free.
- The forward slope gradient must not be larger than 15°.
- For overseeding purposes, the lateral slope gradient must not exceed 10°.
- Bear in mind that turning the machine requires a minimum surface of 3 m² (1.5 x 2 m).
- If the terrain does not meet the above mentioned requirements, preparatory work should be carried out first (read § 9.3; page 34)

9.3. Preparation of the work area

Overseeding is a rapid and economical way of rejuvenating your lawn. The DZC450 is a precision overseeder that can promote optimum growth circumstances for the seed under a minimum loss of seed. Some preparation of the terrain is required in order to guarantee an optimum result and enhance growth possibility.

In order to repair a lawn efficiently, a preliminary study by a professional is necessary:

- a. Structurally prepare the terrain**
- b. Examine the state of the turf and the soil**
- c. Specify the seed mixture according to the subsoil, use of the lawn and climate**
- d. Treatment after overseeding to enhance germination and growth**

a. Structurally prepare the terrain

- As indicated in '§ 9.2. Characteristics of the work area on page 34', the terrain must be free of foreign objects. If this is not the case, then all objects that might otherwise hinder smooth operation must be removed (stones, branches, rope, steel wire, electrical lines, water hoses, parasol base, pickets, lawn furniture, etc.)
- Objects or obstacles that cannot be removed (e.g. tree roots, well cover, stepping stones, irrigation nozzles, sockets, garden lighting, etc.), must be visibly marked.
- Always consult the owner of the lawn to find out where any invisible obstacles may be. (e.g. irrigation pipes, marker points for gas & water pipes, electrical pipes for garden lighting, drainage systems, mole traps, etc.). These must be visibly indicated.
- Also pay attention to any low voltage wires marking the terrain of robotic lawn mowers, electric dog fencing, etc. These must be visibly indicated.
- Large stones in the ground must be removed to avoid damage to the blades.
- If there are quite a few bumps in the lawn (height difference > 2 cm (7/8")) (e.g. molehills), these must be removed beforehand and the lawn must be flattened with a roller several times, preferably after rainy weather. Fill any deep pits with soil, far in advance.



For your information: The user should walk over the area to be overseeded, so that potential problems can be discovered. (read § 9.6.2; page 51)

b. Examine the state of the turf and the soil

Inspect the current vegetation of your lawn:

- Is there a lot of moss or other weeds?
- What is the proportion of grass in the lawn?
- Is there still variety in the grass?
- Is the density of the grass bushes still large enough?
- What is the quality of the remaining grass?...

Depending on this observation, the pre-treatment can be adjusted:

If it is observed that, per m², the lawn is...

I. more than half taken up by moss or weeds:

Clear the lawn and remove all other parasites:

- Spray the lawn two weeks in advance with an anti-moss product or herbicide against broad-leaved weeds. Do this before it rains.
- When the moss and weeds have died, they must be completely raked away. (e.g. intensive scarifying).
- Just before overseeding, cut the grass to a length of 2 cm (7/8") at most.

II. Before 3/4 of it is covered with grass and the rest has open spaces or bare patches:

Overseed here to restore the grass density:

- Just before overseeding, cut the grass to a length of 2 cm (7/8") at most.

III. following a dry period before 3/4 has turned brown:

Remove the dead material, but also the weaker plants:

- Scarify the existing turf thoroughly (diametrically opposed in two directions). Ensure that the blades penetrate 2 mm (0.1") into the soil so that the dried out soil crust is broken.
- Clear the dry or old grass.
- Mow the lawn so that all residues are sucked up by the mower.



Please note: After a period of drought, wait for sufficient rainfall. First saturate the soil with moisture in order to have sufficient water reserves to protect the germination and growth process.

IV. If the intention is to proactively overseed every year or every two years:

Here, the lawn is still in good condition, but the aim is to preventively rejuvenate the vegetation in order to prevent weeds and deterioration. Here, the build-up of felt and weaker grass plants will be removed to make room for new grass.

- Mow the lawn using the shortest mow setting so that the height of the grass is 2 cm (7/8") at most.
- Scarify the lawn thoroughly in two diametrically opposed directions.
- Clear all scarifying residue.
- Mow again in the shortest possible mower setting to remove all residues from the turf.

After the pre-treatment has been carried out, in each of the above cases a thinned out, clean and level lawn area will be left over where the bare soil between the remaining grass vegetation is clearly visible.

Only now is the terrain ready to start the overseeding treatment.

Important information: a good result can only be expected from an overseeding treatment if the following conditions are met: **water and heat.**

Carefully work out the period to overseed. Choose a period where the average day & night temperature is above 10°C - 50°F. Choose a period with sufficient rainfall. Make sure that the soil has absorbed enough moisture and that a period with sufficient rain follows the overseeding treatment.

c. Specify the seed mixture according to the subsoil, use of the lawn and climate

For an optimum overseeding result it is essential to choose the correct grass mix that corresponds with the soil characteristics and the climate. Seed manufacturers produce mixtures with cultivars that quickly grow. Ask your seed specialist for advice.



Please note: always use new grass seed. Old grass seed loses an important part of its germination potential.

d. Treatment after overseeding to enhance germination and growth

After the overseeding treatment, nature will do the rest. Nonetheless, the user can lend a hand to accelerate rapid growth in order to achieve a good result.

- Immediately after sowing, a top dresser (spreader) can be used to spread a layer of compost over the lawn to cover the seed bed. That way, the seed bed is extra protected. The dark colour of the compost will retain the warmth of the sun longer, even after sunset. Compost will absorb torrential rain and store water. The compost is also a soil enhancer and ensures better absorption of nutrients. This will support the growth of the new grass in the longer term. (0.5 to 0.75 m³/are compost must be sown)



Please note: choose compost with a quality certificate. High quality compost is matured in a controlled way, whereby weed seeds and germs are killed, and it contains a slightly alkaline soil enhancer with a small 20% organic matter. If you use poor quality compost, you may import weeds or diseases into your lawn, which is not the intention.

- If you have carried out the overseeding treatment during a rainy period and shortly after that a drought occurs, you must irrigate the lawn twice a day for a minimum of 14 days. Spray 5 litres/m² in the morning (± 8:00 a.m.) and 5 litres/m² in the evening (± 6:00 p.m.).



Please note: In dry, hot periods, watering must be consistent, and not interrupted. Missing a few spray sessions may be enough to dry out early germination, whereby it would be irreversibly lost.

- Fast-acting fertiliser can be added to accelerate the growth of the grass. The nutrients are absorbed immediately and therefore have a rapid effect. The fertiliser should be applied just before rainy weather so that the manure dissolves quickly and penetrates the soil.



Please note: seek advice regarding the dosage of the fertiliser. Too much fertiliser can "burn" the new plants and render the overseeding treatment pointless.

- Once the grass plants have started to grow, it is important that their roots develop well in order to suck up water at great depth during scarcity. This can be promoted by aerating the lawn. The user should pierce vertical holes in compacted layers, 6 to 10 cm (2 to 4") deep. The holes also ensure better drainage of the top layer.



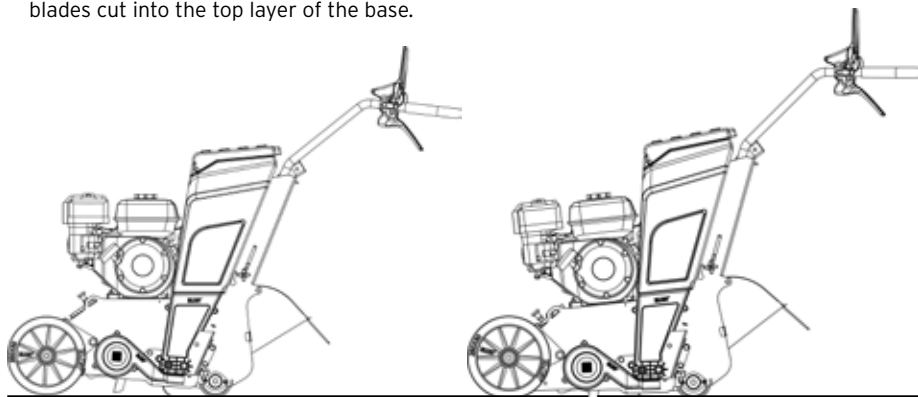
Please note: do NOT aerate before the summer starts or a period of drought is forecast. The perforations ensure that the soil dries out more quickly, which is detrimental to the vegetation. Aeration should preferably be done in early spring or late summer. To maintain the effect of aeration, the holes can be filled with sand or compost by top dressing. The filler can then be added.

9.4. Preparing the machine

9.4.1. Machine set-up

a. Transport mode - Operation mode

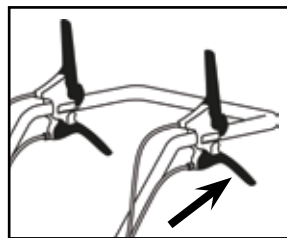
- **Transport mode:** the locked state of the machine where the blades are retracted to the maximum height and do not make any more contact with the lawn base.
- **Operation mode:** the position of the machine at which the blades are set to work depth. The blades cut into the top layer of the base.



Transport mode

Operation mode

- Using the lever on the bottom left-hand side (depth lever) of the handlebars, the machine can be unlocked from its transport mode. Before squeezing this depth lever, push the handlebar slightly downwards. Once the bar has been loosened, the handlebars must be released in a controlled manner so that the blades can be routed into the ground to reach work depth. The work depth equates to the setting made on the machine. (read § b; page 40)



Please note: When the depth lever is squeezed, the machine will enter operation mode under the influence of its own weight. If this is not done in a controlled manner, it will overload the blades, drive belts and engine. Avoid this by using the handlebars as a lever and thus gently tilting the machine to its operation mode.

- Before returning the machine to the transport mode, check that the depth lever is not depressed. Push the handlebars down. The housing lift up until the front wheels come off the ground. At this moment the front wheel holder clicks into the transport mode. Now carefully raise the handlebars again so that the front wheels are back on the ground. The machine is now in transport mode.

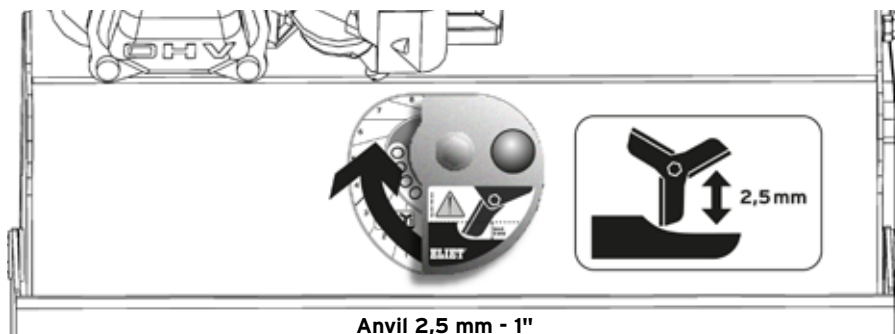


Please note: When you start sowing and activate the roller drive, the machine can lift up at the front. As a result, the machine may return to the transport mode. Therefore, keep the depth lever squeezed closed for a moment to open the lock. Once the machine is at cruising speed, the depth lever can be released.

b. Setting the work depth

To maximize the growing chances of the sown grass seeds, they should be covered by a thin layer of soil. In principle, this equates to a sowing depth of +/- 3 to 5 mm (0.1" to 0.2"). To do this, the cutting depth of the machine should be set to a slightly deeper level. A work depth of 8 to 10 mm (0.3" to 0.4") is recommended. This means that the blades will penetrate the soil up to this depth, and the grooves will have this size on average.

The depth setting is fitted centrally at the front of the machine: there is an adjustment disc there with a diagram with reference indications.



When the **new blades** are used for the first time, the depth setting is "4" (see red marking line), which corresponds to a work depth of 10 mm (0.4").



Please note: The purpose of the depth setting is not to make the blades work deeper, but to compensate for the loss of work depth due to wear and tear!

Please bear in mind that the blades will shorten due to normal wear, and that this will interfere with the depth setting. The depth setting is intended to correct the work depth under the influence of this wear and tear. The indication on the diagram is not a representation of the depth, but only a frame of reference for this setting. By shifting the adjustment disc by one notch, the work depth will be adjusted by ± 2.5 mm (0.1").

Setting procedure:

- Place the machine on a part of the lawn where the ground is level.
- Check that the machine is in transport mode.
- Start the machine's engine (read § 9.5; page 47)
- Start the blades by squeezing the red blade handle.
- Press the handlebars down for a moment so that the front wheels lift.
- Squeeze the depth lever and move the handlebars back up in a controlled manner to lower the machine to its operation mode.
- Then pull the machine backwards about 50 cm (20") with the blades switched on and in operation mode.
- Then push the handlebars down again to put the machine in transport mode and switch off the blades and the engine.
- At the front of the machine, the routed grooves are now clearly visible.

- Measure the depth of the grooves at various places and compare it with the recommended 8 to 10 mm (0.3" to 0.4") work depth.
- Depending on the deviation, the adjustment disc needs to be twisted. To be able to rotate the disc, pull out the locking button.
- The more the adjustment disc is turned clockwise, the greater the work depth. Turning the adjustment disc one notch will change the work depth by 2.5 mm (0.1"). Try to adjust the depth difference by adding 2.5 mm (0.1") several times.
- The depth setting is not selected until the lock button completely springs back to its retracted position.
- Once the depth setting has been adjusted, the test procedure described above must be repeated to check that the correct work depth has been reached.



Please note: Every terrain is different. Factors such as the bearing capacity of the soil, vegetation, soil moisture and the soil type can influence the work depth. In other words, the work depth must be rechecked in each work terrain.

Tip:

As the wear and tear of the blades occurs during working hours, it is recommended that the work depth be checked regularly while working and adjusted if necessary.



Please note: The blades must not be set deeper than 10 cm (4"). Blades that are set too deep have various negative consequences:

- Grass seed that has been inserted too deep causes reduced growth and a poor final result.
- Extra load on the engine.
- Extra load on the drive elements.
- Extra wear and tear on the blades.
- Increased risk of contact with foreign objects in the ground.
- Extra residual dirt that is thrown up and can contaminate the machine.
- Extra fuel consumption.

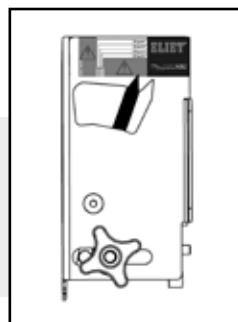
The prescribed work depth must therefore be correctly followed.

c. Setting the seed flow rate

To adjust the seed flow rate, there is a function on the left-hand side of the machine at the seed funnel.



Please note: The seed flow rate always depends on the chosen seed mixture and the production year. The seed flow rate must always be checked and adjusted if another seed mixture is chosen or if seed from a different production batch is used.



Preparation:

In order to adjust the seed flow rate, the seed funnel must be filled with the desired seed mixture. (always pour in a full 10 kg - 22 lbs bag)

5 things must be checked before refilling the seed reservoir:

- Check that the seed funnels of the seed distribution system are not clogged. Position the machine on the Easy Clean™ maintenance support for inspection. (read § 9.7; page 57)
Unclog any clogged funnels.
- Check through the transparent wall whether the seed distribution system is completely empty. If necessary, empty it first. (read § 9.6.5; page 56)
- Check that no traces of condensation or moisture deposits can be observed in the seed distribution system. If there is moisture, first allow it to dry.
- Check whether the seed flow slider moves correctly back and forth when activating the yellow seed lever.
- Check that the two augers are driven when the yellow seed lever is activated. To test this, drive the machine. (read § 9.6.1.1; page 49)

If all the above check points are met, the flow rate can be set.



Please note: When filling the seed reservoir, the grass seed must be poured out in doses and the seed flow must be controlled. This is to avoid any foreign objects (e.g. small stones, sticks, grass clippings, etc.) ending up in the reservoir. Also avoid that any paper from the bag ends up in the reservoir. This can cause the seed distribution system to jam or the seed distribution slider not sealing correctly when releasing the yellow seed lever.

In principle, any grass seed can be used. ELIET recommends seed mixtures developed especially for overseeding or renovation. The setting of the seed flow rate depends on the composition of the seed mixture, and therefore needs to be adjusted via measurement.

Recommended dosing:

- For pro-active overseeding of a healthy lawn with normal vegetation: 20 gr/m² - 0,7 OZ/10sq.ft.
- For restoring a lawn after drought or de-mossing: 25 gr/m² - 0,88 OZ/10sq.ft.
- For bare patches without vegetation: 30 gr/m² - 1,06 OZ/10sq.ft.
- Total renovation: 35 gr/m² - 1,25 OZ/10sq.ft.

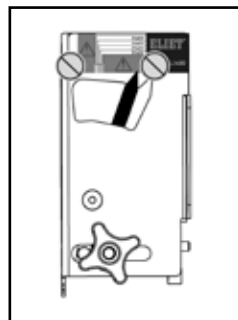
The indication on the dial is only a guide value for the flow setting of an average seed mixture. In order to set the exact setting, adjust accordingly and then further fine-tune the dosage via a practical measurement.

To adjust the seed flow rate, a seed collection gutter is optionally available under the order code MA 033 001 001.



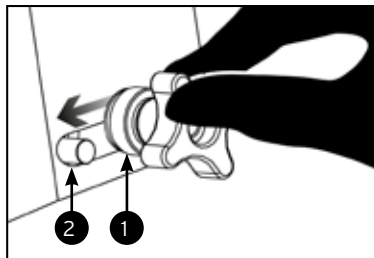
Please note: in the indication on the dial there are two red zones: these are zones which must not be used with normal grass seed.

1. When setting in the **left-hand red zone**, the openings along which the seeds are ejected are very small, and little or no seed will be sown as a result.
2. When setting in the **right-hand red zone**, the openings along which the seeds are ejected are very large, and therefore most of the seed will be spread on the left-hand side before it is spread over the entire working width.
3. This results in a seed pattern that does not cover the full working width.



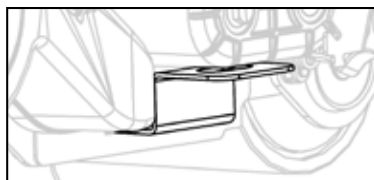
Setting the guide value:

- Turn the star knob of the flow setting in an anti-clockwise direction until there is no more tension on the knob.
- Now gradually press the yellow seed lever on the handlebars. At the same time, look at the indication on the dial.
- If the dial indicates the desired flow setting, hold the yellow seed lever in this position.
- Take the star knob and move it sideways until the stop **(1)** collides with the pin **(2)**. See image.
- Now tighten the star knob again to ensure the chosen flow setting.

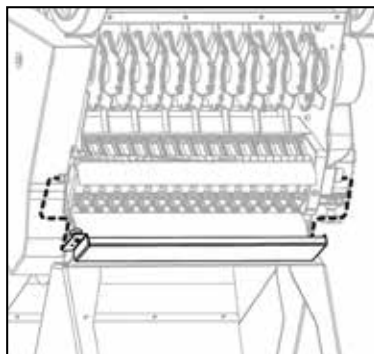


Testing the flow setting:

- Place the machine in transport mode.
- Check that the seed outlet slider is closed (if the red zone protrudes below the seed supply it is open).
- Slide the seed collector gutter under the machine with the pull button on the side of the protection cover.

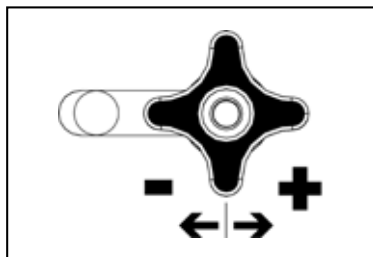


- Place these at the level of the spreading zone of the seed funnels. (see drawing)
- Hook the seed collector gutter with the hole over the protruding bolt end, just below the seed supply for the seed distributor.
- Pull the knob and place the seed collector gutter against the belt cover. Make sure that the pen can be placed in the envisaged hole.
- If the seed collector gutter is hanging under the machine, the engine can be started. (read § 9.5; page 47)



- Apply full throttle to the engine.
- Measure 23 metres and mark the start and end of this distance.
- Place the machine with the front wheel at the start point of this route.
- Press down the yellow seed lever and activate the traction lever (bottom right).
- Drive the machine to the mark at the end point.
- As soon as the front wheel touches the end mark, the yellow seed lever will be released.
- Switch off the engine.

- Remove the seed collector gutter from underneath the machine (do this carefully so that no seed falls out of the tray).
- Pour the seed from this first test drive into the seed reservoir. (This operation is not representative because it was necessary to fill the seed distribution system with seed.
- Place the seed collector gutter under the machine again and repeat the test run.
- Now weigh the amount of collected seed. Dividing the weighted seed by a factor of 10 gives the actual seed quantity sown per m².
- Depending on the deviation from the target value, the flow rate must be increased or reduced.
- Moving the stop to the left reduces the flow.
- Moving the stop to the right increases the flow.
- After adjustment, the test procedure must be repeated until the desired flow rate has been set.



Tip: If you stick to the same type of overseed mixture, you can make a mark on the scale after correctly adjusting the seed flow rate. That way, you can set the correct flow rate more quickly. Please note that the setting must be checked over time. Grass seed is a natural product whose seed size may vary from one harvest to the next, and although it is the same mixture, this may lead to deviations in the setting.

d. Setting the height of the handlebars

To make overseeding as comfortable and ergonomic as possible, the handlebars are height-adjustable.

The following two points are important when choosing the correct height for the handlebars:

- When working with the machine, 3 control levers must be depressed. It is important that the wrists are in a relaxed position so that this does not lead to fatigue.
- Before switching on the blades and turning the machine, the front of the machine often has to be raised by pushing down on the handlebars. For this, use your body weight by leaning on the handlebars with outstretched arms.
- There is a star knob on each side of the handlebar support where the handlebar is attached. This point is also the hinge around which the handlebars are suspended.
- There is a slot which allows the handlebar height to be adjusted stepless over a range of 10 cm (4").
- To do this, loosen the star knob on each side in an anti-clockwise 3/4 turn so that there is no tension on the steering bracket.
- Now move the handlebar up or down until the desired handlebar height is set.
- Check that the shifting on each side of the handlebar support is equal.
- Then screw the star knob back on firmly.

9.4.2. Refuelling

When petrol in the machine is running low, it must be refuelled. The use of fresh petrol is recommended at all times. It is best to use petrol E5.



Warning: Under certain conditions, petrol is extremely flammable and highly explosive. Fires and petrol explosions can inflict severe burns and cause damage to personal property. As a result, please observe the following points:

- Never refuel with the engine running. Always allow the engine to cool off for several minutes prior to fuelling.
- Use fresh petrol only. ELIET is environmentally conscious and, as such, recommends using unleaded petrol. Additives may be used for extended fuel freshness.
- Store the petrol in an approved tank. Keep out of reach of children.
- Never refuel at the location where the machine is later to be operated. Keep a distance of at least 10 m (30ft) from the selected work area. This is to avoid creating a fire hazard.
- Never refuel in a closed area.
- Clean off the area around the cap of the fuel tank and remove it. Do not fill the tank completely. Fill up to approximately 1 cm (1/2") from the brim. In other words, never fill it to the brim.
- Always use a funnel or a spout for refuelling. Special funnels are available from your ELIET dealer.
- If the tank does not contain a sieve, use a hopper with a filter to keep unwanted rubbish from getting into the tank.
- In view of the flammability of petrol, keep in mind that the hot exhaust is right next to the tank.
- Put the cap back on the tank as quickly as possible. If any petrol is spilled while refilling, then the engine should be immediately cleaned.
- Also be aware that clothing does not come in contact with the petrol. If this happens, the clothing should be immediately changed.
- It is irresponsible and therefore strictly prohibited to refill the tank in the vicinity of smokers or near naked flames.
- If fuel is swallowed or comes in contact with the eyes, consult a doctor immediately.



Warning: It is prohibited to smoke when refuelling.

9.5. Starting and stopping the engine



Please note: Never start the machine when dust has settled on the engine or between its cooling fins. This reduces proper cooling of the engine and can cause a fire.



For your information: the procedure to start the engine can vary per brand. Please check your engine manual.



Please note: make sure that there are no bystanders within a 10-metre radius of the machine before starting the engine.



Please note: Make sure that none of the operating levers are engaged when starting the engine.



Please note: avoid starting the engine in an enclosed area. If this cannot be avoided due to the machine's storage; make sure the area is well ventilated and never allow the engine to run for longer than 30 seconds in an enclosed space.



Please note: before starting the engine the correct work clothing and personal protective equipment should be worn.

- Unless already done during the preliminary check, the engine must be checked for adequate oil (read § 11.4.2; page 71) and fuel levels (read § 9.4.2; page 46) prior to starting it.
- Also check that the air filter is clean (read § 11.4.3; page 72) and the engine cooling fins are clean.
- Before starting the engine, the machine should be set to transport mode.

I. Starting the engine



Please note: For optimum protection of your hearing it is recommended to put on hearing protection prior to starting the engine.

- If the fuel tank is equipped with a fuel valve, open it.
- Depending on the type of engine, move the lever or turn the start switch into the ON position.
- Set the choke lever to "Close".
- Apply full throttle, represented by the image of a rabbit.
- Start the engine by pulling the starter cord.
- Once the engine is running, set the choke lever to "Open". This prevents the engine from getting flooded. If you forget to do this, the engine will slow down and start producing a lot of smoke. It will eventually come to a stop. If this happens, restart the engine without opening the choke.
- If the engine fails to restart, this could be due to a greased spark plug, which consequently must be cleaned or replaced (read § 11.7.3; page 94)
- Check whether the engine runs at 3,500 RPM at full throttle.



Warning: Under no circumstances should you ever allow the engine to run for an extended period (> 30 seconds) in a closed environment. The exhaust fumes contain toxins that may cause poisoning or suffocation.



Warning: The machine becomes potentially dangerous as soon as the engine is running. A wrong action can put the machine in motion. The engine must therefore be switched off immediately if you encounter a situation where you no longer have control over the operation.

II. Stopping the engine

- To stop the engine, switch the throttle or turn the knob into the "OFF" position.
- If the machine is equipped with a fuel valve, close it.



For your information: The above description is for indication purposes. You must also read the manual provided by the engine manufacturer.

9.6. Working with the machine

9.6.1. Driving the machine



Warning: Never run the engine in a closed environment for more than 30 seconds. There is a risk of carbon monoxide poisoning from the exhaust if you do. If the machine is stored inside, doors and windows will be opened for maximum ventilation before starting the engine to move the machine.

9.6.1.1. Driving



Please note: prevent bystanders from entering a zone of 10 m (30ft) around the machine when driving.



Please note: before driving the machine, first plot a course, in order to avoid any danger zones and obstacles.

- The DZC450 is equipped with a rubber traction roller at the rear. This traction roller can be driven to allow the machine to drive autonomously. The drive only works in a forward direction.
- The drive only works when the engine is running. Therefore, always start the engine to use the drive. (read § 9.5; page 47)
- To activate the drive, close the black traction lever at the bottom right of the handlebars.
- While driving, this traction lever must always be pressed against the handlebar.
- The machine has 1 fixed driving speed. This driving speed corresponds to the speed required to work comfortably.



For your information: For storing the machine or for driving between obstacles, the fixed driving speed can be slowed down by slowing down the engine speed. Please note, while working, you need the full power of the engine and you must always run it on full throttle.

- The machine can be moved in operation mode or in transport mode.
- There is an automatic freewheel setting that allows the machine to be pushed manually if the drive is not activated.
- If you find yourself in a complex situation where the speed is too high to ensure safety, you must immediately release the traction lever and push the machine manually until the situation allows you to use the traction again.
- As soon as the traction lever is released, the self drive is released but there is no brake.



Please note: Due to inertia, the machine may still roll on a bit. Be alert and anticipate to avoid collisions.



Please note: When descending a slope, the machine can start moving faster, under the influence of its own weight, than the drive system can handle. Be alert so that you can slow down in good time by pulling on the handlebars.



Please note: Due to the neutral setting on the drive, the machine is not slowed down at standstill. The machine does not have a parking brake. When storing or transporting the machine, make sure it is secured to prevent it from moving and causing damage. ELIET cannot be held liable for damage to property.



For your information: Instructions for loading and unloading the machine can be read in '§ 10. Transporting the machine on page 66'



For your information: Machine breakage or defects resulting from incompetent operation are excluded from the warranty conditions.

- The DZC450 has only limited ground clearance. Avoid driving the machine across unstable, soggy or bumpy surfaces. As a result, the seed distribution system and especially the seed funnels can collide with the ground, contaminating or clogging the spreading areas.
- Avoid driving over damp lawns (e.g. morning dew or after a rainstorm). The moisture on the grass will wet the funnels of the seed distribution system. Seed will stick to this moisture, causing accumulation and clogging in the seed funnels.

9.6.1.2. Turning

When overseeding a terrain, the operator must always drive parallel lanes or strips that are nicely in alignment. If you have reached the end of a strip and you wish to turn to overseed the adjoining strip, the machine will have to be turned 180° degrees within a limited amount of space.



Please note: make sure that there are no bystanders within a 10-metre radius of the machine.

Proceed as follows:

- Release the yellow seed lever to close the seed distribution system in order to avoid wasting grass seed in the turning zone.
- Push the handlebars downwards so that the blades are lifted. Make sure that the front wheels are 2 cm (7/8") off the ground and that the machine only rests on the traction roller.
- Keep the wheel drive activated and rotate the machine around its axle so that it is ready for a new strip. If there is enough space, try to make this manoeuvre in one smooth movement.
- If space is rather limited, the wheel traction must be switched off so the operator can take the time to carry out the turning movement calmly and in a controlled manner.
- As soon as the machine is ready to cut the new work strip, the depth lever is closed and the machine is lowered again to its work depth.
- Simultaneously press the yellow seed lever so that the seed distribution system is activated again and sowing is started at the beginning of the new working strip.



Please note: When you start sowing and activate the roller drive, the machine can lift up at the front. As a result, the machine may be clicked back into transport mode. Therefore, always keep the depth lever squeezed closed for a moment to open the lock. Once the machine is at cruising speed, the depth lever can be released.

- When turning, push the handlebars down so that the front wheels are lifted, to perform the turning movement over the traction roller.



For your information: In order to prevent strain on the arms and back muscles, use your body weight as much as possible when turning, by leaning on the handlebars. Therefore, adjust the handlebar height correctly so that this can be done from the most ergonomic position. (read § d; page 45)

9.6.2. Planning and determining the track and the work pattern.

A work pattern will depend on the state of the terrain and the preparations already made. The following criteria apply:

- **Layout** of the terrain. You can work faster in long stretches with fewer turns.
- **Topography** of the terrain. Slight slopes can best be worked by riding the slope transversally. For steeper slopes, the best work method is to drive up and down the slope.
- What **obstacles** must be taken into account? The angle for approaching obstacles depends on where it is easiest to make a turn.
- Eliminating **turning zones**. This can be important for an easy and quick finish of the turning zones after completion of the rest of the terrain.
- Wherever possible, the route must be organised in such a way that the **wind** blows away the dust generated by the engine.

9.6.3. Overseeding



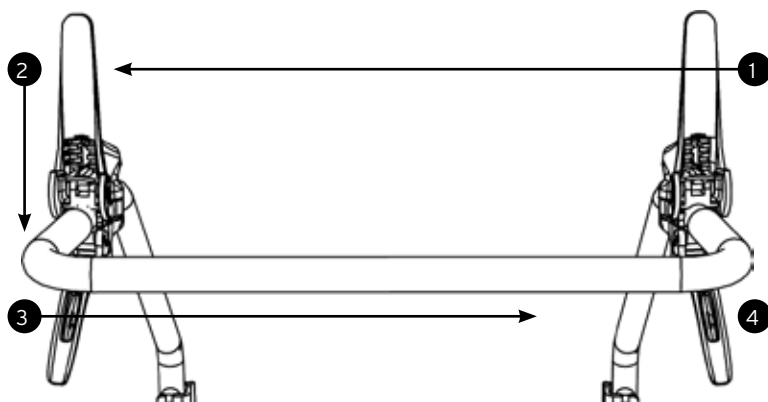
Please note: The operator must comply with clothing instructions and wear the required personal protection.
(read § 7.3.4; page 21)



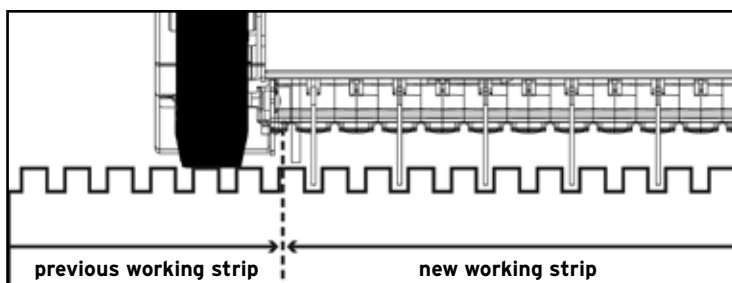
Please note: If you plan to overseed, keep bystanders at a safe distance (10 m - 30ft).

- Proper gardening starts with studying the work area, removing any obstacles and determining a work pattern and a route. (read § 9.6.2; page 51)
- It also involves proper preliminary machine inspection and correct settings (read § 9.4.1; page 38) .
- The overseeding procedure can start as soon as the machine is on the work area, at the beginning of the defined route.
- Make a calculation in advance for the amount of seed that will be needed.
(surface (m²) / flow (gr/m²) x 1000 = required kilos)
- Determine how far you will get with a bag of seed and place the bags where you think the seed reservoir will be empty. While working, this gives an indication whether the seed consumption is correct so that adjustments can be made in good time.

- Always place the machine to move in a straight line relative to the intended lane; it avoids having to immediately turn and adjust course to get back on track.
- Always apply full throttle (3,500 RPM).
- Push the handlebars downwards so that the front wheels briefly come off the ground.
- The operating levers were fitted to the handlebars in such a way that there is a logical and intuitive sequence to activate the machine:



1. Squeeze the red blade lever **(1)** to start the blades.
 2. Then squeeze the yellow seed lever **(2)** to activate the seed distribution system.
 3. Now squeeze the depth lever **(3)** and lower the machine to work depth so that the blades can cut into the grass.
 4. Finally, squeeze the traction lever **(4)** so that the wheel drive is activated and the machine moves forward.
- When overseeding, drive in parallel and make sure that the seeding zones are nicely aligned. To do this, drive with the front wheel overlapping the previous working strip. Drive with the inside of the front wheel just along the penultimate groove of the working strip already sown, so that the interline between the sowing lines of the next working strip can be maintained.



- Avoid making sudden steering jolts during the overseeding. Bear in mind that the blades are at a work depth of 1 cm (1/2") and will cut away a zone from the lawn in a lateral movement.
- In order to have a nice even overseeding result, it is important to avoid overlapping or sowing areas twice. Turning zones must therefore be finished last by sowing a number of strips at right angles to the normal working strips.
- Therefore, at the end of each work strip, try to interrupt the point at which the overseeding is interrupted in order to keep the turning procedure identical between the working strips.

A number of elements must be kept in mind during sowing:

1. The area behind the machine must be checked to make sure that the seed is still spread across its entire width. This makes it possible to detect a possible clogging of the seed funnel. In the event of an uneven seed pattern, stop the overseeding to check the seed distributor.
 2. Follow the projection flow of the residual dirt. In normal operation, the projection must be evenly distributed over the entire width. If dirt is not projected in a certain zone, this may indicate a blockage in the output channel or in the zone around the ejector accelerator. Stop the overseeding to clean the output channel. (read § 9.7; page 57)
 3. On the left side of the machine, regularly check the control point at the end of the auger of the seed distributor. This is a protruding bolt head. If you see this bolt head rotating during overseeding, this means that the augers are rotating and that the drive of the seed distributor is working correctly. As soon as this bolt head is no longer rotating while the seed lever is pressed, stop the overseeding to investigate the cause of this drive failure. (read § e; page 63)
 4. After pressing the yellow seed lever, check whether the dial on the flow scale effectively moves to the set flow rate. Due to soiling, the dosing slide might no longer move and therefore not open the spreading openings correctly. This results in a false sowing result. Stop the overseeding and first analyse the cause in order to solve the problem.
 5. Regularly check the level of the seed in the seed reservoir. This is to avoid an area being covered without any grass seed being sown.
 6. After every accumulated area of 1,000 m² the work depth of the machine must be checked. Any loss of work depth due to wear and tear of the blades must be adjusted.
- If the seed reservoir is empty just before the overseeding is finished, only top up with what is needed to finish the lawn. This will reduce the amount of work required to empty the machine after overseeding.
 - If you encounter an obstacle in the ground during overseeding, stop the overseeding immediately, switch off the engine and check that the blades have not been damaged. If a blade is bent, straighten it before continuing work.

- If you notice that the engine has difficulty keeping up its RPMs in a particular area, for example because the machine is sinking a little deeper into the ground or the top layer is a hard dry crust, you can push the handlebar down slightly in this area so that the blades are lifted slightly and the load on the engine is reduced.

9.6.4. After overseeding

When overseeding, the residual soil is laid on top of the seed bed like a top dressing. The quality of this residual material depends on the extent to which the terrain was prepared. If the old turf has not been sufficiently cleared and a lot of felt, moss and dried grass has been left behind, part of this contamination will also be thrown up during the overseeding. This may leave an untidy appearance.



For your information: it is important to carry out the preparations thoroughly, to avoid a lot of work afterwards. (read § 9.3; page 34)

In such cases, you can do the following:

- Allow the residual dirt, that was thrown up as top dressing, to dry. Once the moisture has evaporated, the dirt will crumble and fall into the grooves.
- Now you can rake away any remains of moss or dry grass from the lawn with a rake.
- Any accumulations of residual dirt can also be spread out evenly.

Overseeding treatment has a good chance of success. Under normal conditions with sufficient moisture and warmth, the new grass will emerge after 10 to 14 days.

If it is too dry or too cold, it may take longer for the grass to germinate. If the seed has not received any moisture after overseeding and the germination process has not yet started, do **not** add any water. The seed still has all its germination potential, and will germinate when sufficient moisture is available. Be patient and wait for a rainy spell.

If the seed has started to germinate after overseeding and no rainy spell is expected, extra irrigation is **necessary** to safeguard the overseeding treatment. If you do not do this, the germ will dry out and the seed will be lost.

Which elements can influence the outcome:

- **Wind:** strong wind can cause the seed to be blown away or gathered in another place on the site. There is more risk of this if the seed has not yet germinated and the wind follows a dry period.
- **Too much water:** If there is a cloudburst with abundant rain after the overseeding, the soil may not have enough time to absorb the water. The light seeds float and can be washed away by the water or gather in less elevated areas.
- **Drought:** as described above, drought is the worst enemy of a young shoot. Especially if the root of the young plant is insufficiently developed to absorb moisture from deeper soil, it is highly vulnerable to dehydration. Particular vigilance must be exercised at this stage, to tackle water shortages through irrigation if necessary.

- The renovated lawn must be mowed for the first time when the new grass has reached a height of 5 cm (2").
- As described in '§ d. Treatment after overseeding to enhance germination and growth on page 37' you can still top-dress and fertilize to further boost the results of the overseeding treatment.

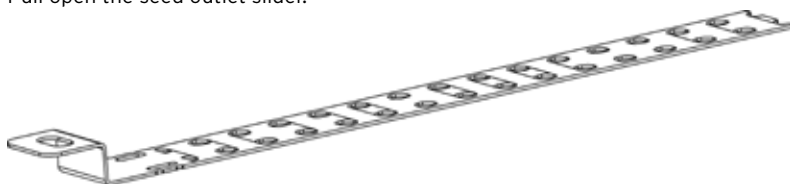
9.6.5. Emptying the seed distribution system

Please note: It is **mandatory** to remove the seed from the seed reservoir and the seed distribution system after each overseeding session.

If the machine is stored in humid conditions, any seed still in the machine may germinate. If this germination process occurs with seed in auger channels and the seed distribution system, the machine cannot be used until it is disassembled and the entire system is cleaned. By systematically keeping the machine free of seeds, this can be avoided.

Procedure:

- Place the machine on a hard surface (e.g. concrete). Wipe the surface beforehand so that it is dust-free.
- Use a cup to scoop the seed out of the seed reservoir and seed guide.
- Pull open the seed outlet slider.



- Open the lid of the seed reservoir so that you have a good view of the contents of the tray.
- Start the engine (read § 9.5; page 47)
- Squeeze the yellow seed lever.
- Now lift the handlebar so that the roller no longer makes contact with the ground.
- Now squeeze the traction lever so that the roller starts to rotate.
- The seed distribution mechanism that is driven indirectly via the roller will now be activated and will strew all remaining seed from the seed reservoir and distribution system onto the ground.
- When you see that all the seed at the bottom of the seed guide has gone, release the levers again.
- Drive the machine forward on the front wheels so that you can put the machine back on the ground past the discharged seed.
- Now the seed can be swept together and poured back into the seed bag. **Please note:** make sure impurities do not end up in the bag.
- Do not forget to close the seed slider again.

Tip: In order to simplify the emptying of the machine, a good estimate of the consumption can ensure that the seed reservoir is almost empty at the end of the terrain. Open the seed outlet slider and activate the seed distribution system as you drive away from the lawn. The residual seed is then sown onto the lawn, which is an easy way to empty the machine.

Tip: a vacuum cleaner can also be used to remove the residual seed from the machine.

9.7. Cleaning the machine



Please note: machine maintenance such as cleaning should only be carried out when the engine is turned off.



Please note: there are also risks involved in cleaning the machine. Wear protective clothing and also protect body parts by wearing personal protective equipment. (goggles and gloves)

ELIET recommends cleaning the machine after each use. We recommend performing an inspection each time you clean the machine to check component and machine integrity. This allows timely intervention and prevention of any defects. This will ensure a longer service life for your machine.

Disadvantages of not cleaning:

- A poorly functioning machine for the next overseeding session
- Uneven seeding pattern
- Increased wear of the bearings
- Increased wear and tear of covers
- Jamming of moving parts
- Reduced engine cooling, increased wear of the engine
- Increased risk of fire
- Inability to notice cracks or tears
- Damage to the paint
- Illegibility of safety stickers



Please note: Failure to perform the daily clean-up will void the warranty.

Tip: clean the machine immediately after overseeding. That way, mud and soil cannot dry up and stick to parts, making cleaning and rinsing considerably easier.

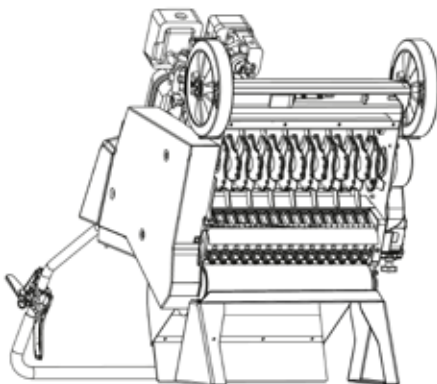
Using the Easy Clean™ maintenance support:

The special Easy Clean™ maintenance support was supplied with the machine, for easy access to the underside of the machine for cleaning.



How to use it:

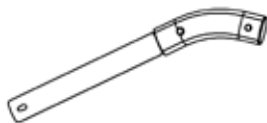
- Switch off the engine.
- Place the machine on a flat surface.
- Remove the protective cover on the back of the machine.
- Place the Easy Clean™ against the traction roller.
- Squat for a moment and place your fore-arms under the head tube, allowing it to rest on your inner elbow.
- Stand up again and lift the back of the machine up to 20 cm (8") off the ground.
- Now slide the Easy Clean™ under the rubber roller with your foot.
- Lower the machine so that the roller rests on the Easy Clean™.
- Now you can push the handlebars down so that the machine tilts backwards. Do this until the handlebar rests on the ground.
- Now you can safely carry out the maintenance work on the underside of the machine.



Please note: when the machine is tilted, fuel can leak out of the petrol tank. Put the machine back on its front wheels and remove the petrol from the tank before continuing the maintenance work.

A special cleaning tool is supplied with the machine to safely remove soil and sticky dirt from hard-to-reach areas.

Use a dry cloth or compressed air for any cleaning. Use penetrating oil with MoS2 to remove grease and lubricants. The latter is a lubricant and rust solvent at the same time.



Please note: It is **prohibited** to clean the machine using a high-pressure cleaner.



The following points require special attention:

- Always remove the seed from the seed reservoir after use. (read § 9.6.5; page 56)
- The cooling fins and exhaust of the engine must be clean. Remove any accumulation of soil, seed or plant debris. The area around the fuel cap must be kept clean to avoid dirt entering the fuel tank. Blow away any dirt that might block the throttle control.
- Check and clean the air filter after each use.
- Check that the blades are not damaged or bent.
- Check that nothing is wrapped around the blade axle.
- Remove all stuck-on dirt on the inside of the housing. Use the cleaning tool in this regard.
- Remove soil build-up around the ejector accelerator and channel and on the rear cover. Use the cleaning tool in this regard.
- Remove all stuck-on dirt from the seed distribution system. Make sure that the transparent wall is transparent again so that any seed accumulations in the system can be seen.
- Also check that the seed funnels are completely free from clogging.
- Clean the traction roller and remove any dirt build-up in the housing around this roller.
- Clean the suction grille for the blower turbine.
- Remove the large protective cover and remove any accumulation of dirt and soil.
- Clean the transmission parts.
- Check and lubricate the chain drives.
- Thoroughly degrease the pulley coupling of the seed distribution system. Use Novatio Clean Spray.
- The bearing bushes and hinges must be cleaned of sand and dirt that remains stuck in the lubricant. Reapply lubrication after wiping.(read § 11.5.1; page 74)
- Blow away dust from operating levers and cables with compressed air.
- Use a dry cloth to remove dirt from the chassis and more specifically from the stickers with safety instructions.

9.8. Fault diagnosis

9.8.1. The engine fails to start after periods of inactivity.

If the machine fails to start up after periods of inactivity, then this could be the result of any of the following causes:

- a. **Lack of petrol**
- b. **Petrol is stale**
- c. **Bad spark plug**
- d. **Lack of oil**
- e. **Other reason**



Please note: Before examining possible reasons for the fault, make sure the ON/OFF switch for the engine is turned to the OFF position.

a. Lack of petrol

First check that the fuel valve (if any) is open.

As stated in '§ 12. Storing the machine on page 96' you are advised to remove any petrol before long term storage of the machine. It may be the case that you forgot to refuel the machine. Check that the tank is adequately filled and refuel if necessary. A few attempts to start will be necessary to pump the petrol into the carburettor. Close the choke so that the petrol is sucked into the pipe. The engine will start running as soon as the carburettor has filled.

b. Petrol is stale

Petrol has a limited shelf life. Petrol that has been sitting in petrol tank for more than a few months can cause starter problems. It also smells totally different than fresh petrol.

Empty the contents of the petrol tank and drain the float chamber of the carburettor. Refill the petrol tank with fresh petrol. (read § 9.4.2; page 46)



Please note: be careful, even stale petrol can still be extremely flammable.

c. Bad spark plug

Without proper ignition, it will be impossible to get the engine to start. As such, check the spark plug. (read § 11.7.3; page 94)

d. Lack of oil

The engine's crankcase is filled with engine oil to lubricate and cool the pistons. Lack of oil can lead to increased wear of the engine. To protect the engine, the machine has been equipped with a control switch. This will disengage the engine if the machine is low on oil. Check the oil level and refuel as necessary (read § 11.4.2; page 71) .

e. Other reason

If the previous points do not identify the source of the problem, contact your authorised ELIET dealer.

9.8.2. Engine shuts off whilst in use

If the engine suddenly shuts off during operation, this could be the result of a number of factors:

- a. Lack of petrol**
- b. Lack of oil in the engine**
- c. Machine is on a slope**
- d. Overload**
- e. Technical defect**



Please note: Before examining possible reasons for the fault, make sure the ON/OFF switch for the engine is turned to the OFF position.

a. Lack of petrol

Read '§ 9.8.1. The engine fails to start after periods of inactivity. on page 59'

b. Lack of oil in the engine

Read '§ 9.8.1. The engine fails to start after periods of inactivity. on page 59'

c. Machine is on a slope

Whilst working on a slope in the lengthwise direction, the engine may suddenly stop. This is caused by the oil alarm. Since the oil alarm works on the basis of level measurement, it detects a falsified oil level due to the engine being at an angle. This is enough reason for the system to switch off the engine.

In that case, wait a moment and start again. The problem will return if you continue to do work on a slope.



Warning: Neither ELIET, nor the engine manufacturer, shall accept warranty claims based on a lack of oil in the machine.

If slopes are a recurring factor in a particular area, adding 0.2 litres of extra oil to the tank will resolve the problem.

d. Overload

While working, the blades may come into contact with an obstacle in the ground. This impact can block the engine. Sometimes the object can be lifted from the ground and get stuck in the blade system or the ejector accelerator. This will also cause the engine to stall. So check the blades and the housing for any damage. Remove objects that are wrapped around the blades or block them. After removing the obstacle from the blades, the engine can be started again as usual.

e. Technical defect

If neither of the aforementioned checks identifies the cause, the problem could be more technical in nature. A defect in the engine or a problem with the carburettor or ignition could be the issue. For assistance with these problems, please visit your authorised ELIET dealer or an authorised service center for the engine brand.

9.8.3. Loss of grass seed during transport

During transport, the machine leaves a trail of grass seed. This can result in vegetation between paving stones and must therefore be avoided. Possible causes:

- a. The seed flow slider does not close properly**
- b. The seed flow slider is open**
- c. The seed funnel is clogged**

- a. The most obvious cause is that the seed flow slider does not close properly after releasing the yellow seed lever. This seed flow slider is switched to its closed position via a tension spring. If this tension spring is broken or has come loose for a specific reason, the seed reservoir will not shut itself. Check the condition of this spring.

The seed flow slider is operated via a cable connected to the yellow seed lever. If this cable encounters too much resistance due to soiling or deformation and does not retract when the lever is released, the flow slider will stay open. The operator will quickly notice this, because the seed lever does not spring back when released. Check and lubricate the cable guide.

It happens that an object has ended up in the seed and is jammed in one of the scattering openings of the seed flow slider. As a result, the slide cannot close mechanically. Check that the seed flow slider can move over its full range and remove the obstacle.

If, due to contamination of the guide slider, the seed distribution slider (e.g. due to deposits of the coating of the grass seed) becomes stiff, the tension spring may not have sufficient force to overcome this resistance and the seed distribution slider will remain open. Check the seed flow slider can move and clean if necessary.

- b. If, by mistake or due to a glitch, the seed outlet slider has been opened, it is normal for seed to fall out of the seed distribution system in this way. Check the position of the slider and close it again.
- c. During operation, one or more seed funnels may become clogged at the bottom. This fills the funnels with seed. If the seed funnel is unblocked again due to vibration or the drying up of the blockage, the funnel will completely empty. This can also create a temporary trail of seed. Check if the seed distribution system for clogged funnels.

9.8.4. Irregular seed pattern

When overseeding, you can observe the scattered seed in and around the grooves. Under normal conditions, the seeds are uniformly distributed over the entire working width. If, however, you notice certain areas with no distribution, or excessive or uneven distribution of seed, this can have the following causes:

- a. Empty seed reservoir**
- b. Incorrect flow setting**
- c. Clogged seed funnels**
- d. Problems with the seed flow slider**
- e. Malfunction in the drive**

a. Empty seed reservoir:

During overseeding, you may forget about the seed level. As the seed reservoir is almost empty, the auger will not carry enough seed through the distribution channel, causing the seed pattern to become irregular and the spreading will eventually stop. Refill the seed reservoir with seed. **Please note:** drive a few meters forward to fill the seed distribution system back up with seed and obtain a stable seed image.

b. Incorrect flow setting:

As described in '§ c. Setting the seed flow rate on page 42' a flow setting in the red zones on the sowing chart will result in an imperfect seed image. Correctly set the seed flow.

c. Clogged seed funnels:

During operation, one or more seed funnels may become clogged at the bottom. After a while, this blockage may disappear by itself, causing the accumulated seed in the funnel to suddenly be scattered, with too much seed scattered in one particular spot. Check the seed distribution system for clogging.

d. Problems with the seed flow slider:

As described in '§ 9.8.3. Loss of grass seed during transport on page 62' there are numerous causes that cause the seed flow slider not to switch to the desired position and thus give a distorted or irregular seed pattern.

e. Malfunction in the drive:

The seed distribution system works using augers that distribute the seed from the seed reservoir over the width of the machine. These augers are driven by a chain and run synchronously with the machine's operating speed. There is a coupling to activate the drive. If the drive on this auger fails, the supply of seed will stop and the sowing will eventually stop. Possible causes of interruptions to the drive:

- Dirt build-up between the two gear wheels of the auger shafts, preventing rotation.
- Slip on the coupling pulley. If the pulley slips on the belt that carries the transmission to the augers, they are no longer driven. Check the cable and cable tension, degrease the pulley and check the condition of the belt.
- If a gear wheel has come loose from the auger drive, the key may have failed. As a result, the drive fails.
- If the torque limiter slips, not only the drive to the traction roller but also the drive to the seed distribution system will fail.
- If the spring of the chain tensioner is broken, the chain becomes too loose and can run over the toothing in the floating chain sprocket before the auger drive.
- If the chain is broken, the drive to the traction roller and the seed distribution system will fail.
- If the drive belt of the gearbox slips, the drive of the traction roller and the seed distribution system will malfunction.

9.8.5. A trail of damage to the lawn

Whilst overseeding, you may notice a trail of damage in a worked strip. Possible causes may be:

- Since the blades do the ground work, examine these first. Presumably, one or more blades has struck an object in the ground, causing it to become bent and carve out wide, unsightly grooves.
- Read '§ 11.4.4. Checking the blades on page 73' to trace irregularities.
- There may also be something wrapped around the blade shaft that causes a trail of damage.

9.8.6. Unintended activation from transport or operation mode.

If ever during operation or overseeding, the machine suddenly switches from transport mode to operation mode, then the following problems could arise as a result:

- Locking remains in place after operation: check, clean, or replace the locking mechanism if necessary.
- The cable of the lock is dirty and shifts with difficulty. After releasing the depth lever, the cable prevents the bolt from being fully closed again. Clean the cable guide.
- The depth lever has been unintentionally activated by one or other obstacle (e.g. when driving along a hedge or bush).

9.8.7. The machine remains stuck in transport mode

If during driving or overseeding the front wheel arch can no longer move to transport mode, or transport mode can no longer be moved to operation mode, then the following problems may be the cause:

- The hinges of the front wheel arch are stuck because of dirt or insufficient lubrication: clean the hinge and apply lubricant liberally.
- Dirt is piling up between the front wheel arch and the chassis: thoroughly clean the gap between the front wheel arch and the chassis.
- The cable that operates the locking mechanism is or broken or jammed. Adjust, and clean, add lubricant, or replace these if necessary.

9.8.8. The machine loses traction while driving or operating

If, while driving or overseeding, you have the feeling that the machine is losing traction and you have to nudge the machine to move it forward, then the following causes may be possible:

- a. The torque limiter is slipping**
- b. Insufficient chain tension**
- c. Broken chain**
- d. Loose sprocket wheel**
- e. Insufficient activation of transmission box**
- f. Defective transmission box**
- g. Freewheel bearing jammed**
- h. Soiling of the cable**

a. The torque limiter is slipping:

In order to protect the driveline in the event of a blockage of the roller or the seed distributor, a torque limiter has been fitted to the floating sprocket wheel. If, due to frequent overload, this torque limiter has often slipped, wear will have occurred on the friction plates, lowering the limit value for slipping. Tighten the torque limiter. Consult your authorised ELIET Service center for more information.

b. Insufficient chain tension:

If the spring of the automatic chain tensioner is broken or has snapped off, the chain will come loose. As a result, the sprocket on the traction roller will not be driven or will be driven intermittently. Check the chain and the tension. (read § 11.8.2; page 95)

c. Broken chain:

In extreme cases, a chain may have broken or the chain lock may have come loose. Check the chain and have it repaired or replaced by your authorised ELIET Service Center.

d. Loose sprocket wheel:

The sprocket wheel on the axle of the traction roller may have come loose. As a result, the key may have come loose and the drive will no longer be transferred. Check the sprocket wheel and key. If necessary, replace the key and/or sprocket wheel.

e. Insufficient activation of transmission box:

The transmission box is activated via a cable connected to the traction lever. If this cable is stretched, the transmission will not be fully engaged and the drive will malfunction. Check that the lever on the transmission box is fully engaged when the traction lever is pressed. Adjust as needed.

f. Defective transmission box:

If, when the traction is activated correctly, the output axle of the transmission box does not rotate, there is probably a defect in the transmission box. Visit your approved ELIET Service Center to check and repair this.

g. Freewheel bearing jammed:

If, when the traction is correctly activated, the output axle of the transmission box rotates but the torque limiter does not rotate, the freewheel bearing in the core of this torque limiter will be jammed by dried lubricant. Pump some grease into the grease nipple to loosen the freewheel bearing. If this does not work, contact your authorised ELIET Service Center to clean the freewheel bearing.

h. Soiling of the cable:

The transmission is operated by the traction lever which, via a cable, controls the lever of the transmission box. If the cable no longer slides smoothly back and forth in the cable guide due to soiling, the cable cannot spring back sufficiently when the traction lever is released, meaning that the drive is not completely disengaged. This can create an unsafe situation. Clean and lubricate the cable guide.

10. Transporting the machine



Please note: when transporting the machine you must wear the appropriate work clothing and personal protective equipment.



Please note: during transport, keep bystanders and animals at a safe distance of 10 m (30ft).

I. Actions to take before loading



For your information: Also read '§ 9.6.1. Driving the machine on page 49'; this chapter contains useful instructions for safely operating the machine.



Warning: Loading and unloading the overseeder requires caution and concentration.

- When pushing the machine onto the ramps, keep it in a straight line and avoid steering corrections.

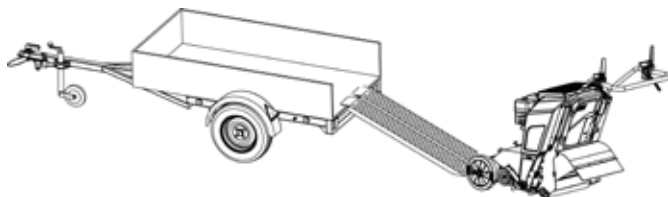


Please note: Never activate the blades during transport!

II. Loading the machine onto the trailer

- Only adults are permitted to move or transport the machine.
- Carefully choose a clear and free transport path, preferably one with as few obstructions as possible. The transport route should preferably be flat, with an even surface.
- Use two non-slip loading ramps of 30 cm (12") when loading the machine into a van or onto a trailer. Ensure that the ramps are properly fastened to the vehicle or trailer. Under no circumstances should the upwards slope exceed 25°.

- Ensure that the traction of the roller cannot dislodge the ramps.
- Ensure that the loading ramps are able to support the weight of both the machine (126 kg) and the operator.



- If loading the machine onto a utility trailer, the trailer itself should be hitched onto a vehicle.
- Ask someone to assist you if you feel insecure about loading the machine.
- Ensure that the vehicle has sufficient bearing power to transport the machine.



Warning: never allow the machine to run for more than 30 seconds in a closed environment where animals or people are present. Exhaust fumes from petrol engines contain harmful substances that can cause poisoning or suffocation and death.

- Do not run the engine longer than necessary when (un)loading the overseeder into/from a closed van. Open all the doors of the loading area to ensure sufficient ventilation.

III. Securing the machine to the trailer

- Place the machine against the front wall of the load compartment, or block the front against a solid object so that the machine cannot slide forward when braking.
- Make sure the machine is securely tied down to the vehicle during transport. Use the attachment points provided to attach ropes or belts. Moreover, only use fixed chassis parts to attach the ropes or belts.
- The ropes, straps, or belts used must be in a good condition.
- ELIET cannot be held responsible for accidents or damage resulting from negligence in securing the machine for transport.



For your information: machine breakage or defects resulting from incompetent operation are excluded from the warranty conditions.



For your information: always close the petrol valve on the machine before transport. Failure to do so may result in excessive amounts of petrol being fed into the engine, causing starter problems and the risk of having to change the spark plug.

11. Maintenance

11.1. General

ELIET recommends bringing the machine to an official ELIET dealer for a full service every year (find an authorised ELIET dealer near you at www.elieta.eu). Your ELIET dealer is at your service for maintenance and advice at all times. They stock original ELIET replacement parts and lubricants. Their staff can always obtain advice and service from ELIET's help desk in order to provide you with an impeccable after-sales service.



Please note: incorrectly performed maintenance may compromise the operator's safety. Only those with knowledge and sufficient technical experience may carry out maintenance.



Please note: Use only genuine ELIET spare parts when performing repairs. These machine parts are manufactured according to the same strict quality requirements and craftsmanship as the original equipment. For a list of original spare parts and their ordering codes please visit www.elieta.eu.

Maintenance must always be carried out in a designated area. The area must meet the following criteria:

- Spacious
- Dust-free
- Easily accessible
- Clean and tidy
- Well lit
- Quiet

These characteristics are important for the correct performance of the maintenance.



Please note: maintenance must always be carried out with the engine turned off. As a precaution, the spark plug should also be removed.



Please note: Always wear safety gloves and safety goggles when performing maintenance. Additionally, hearing protection may be required for certain operations.

Tip: In principle, the maintenance works described can be carried out by a person with technical skills. However, ELIET recommends that the machine be brought to an authorised ELIET Service center for a major overhaul each year.

11.2. Periodic maintenance schedule

The new machine should be returned to the ELIET dealer for the first maintenance after the first 10 hours of operation. This includes: tightening the drive belts and replacing the first engine oil.

Thereafter, the maintenance schedule to be followed is:

"11.4. Routine check before each operation" on page 70

- "11.4.1. Visual check of the state of the machine" on page 70
- "11.4.2. Checking and topping up the engine's oil level" on page 71
- "11.4.3. Cleaning the air filter" on page 72
- "11.4.4. Checking the blades" on page 73

"11.5. Maintenance after every 25 hours of operation" on page 74

- "11.5.1. General lubrication treatment" on page 74
- "11.5.2. Changing the oil" on page 83
- "11.5.3. Checking and adjusting the belt tension" on page 84

"11.6. Maintenance after every 100 hours of operation" on page 88

- "11.6.1. Replacing the blades" on page 88
- "11.6.2. Replacing the air filter" on page 90

"11.7. Maintenance after every 200 hours of operation" on page 90

- "11.7.1. Replacing belts" on page 90
- "11.7.2. Replacing the belt tensioning roller" on page 91
- "11.7.3. Checking and/or replacing the spark plug" on page 94

"11.8. Maintenance after every 500 hours of operation" on page 95

- "11.8.1. Replacing chains and sprockets" on page 95
- "11.8.2. Chain tightening" on page 95

11.3. Lubricants

Engine	MOBIL DELVAC MX 10W30
Hinges	NOVATIO CLEAR LUBE-S
Friction surfaces	NOVATIO CLEAR LUBE-S
Lubrication nipples	MOBILGREASE XHP222
Cables and cable guides	NOVATIO PTFE OIL H1
Chains	NOVATIO CLEAR LUBE-S / NOVATIO PTFE OIL H1
Bearings	NOVATIO PTFE OIL H1

11.4. Routine check before each operation

11.4.1. Visual check of the state of the machine

It is essential to inspect the machine after every use. This means that breakage and wear can be discovered early on. Then, the required repairs can be carried out to ensure that the machine remains in good condition ready for the next use.

Some points deserve special attention:

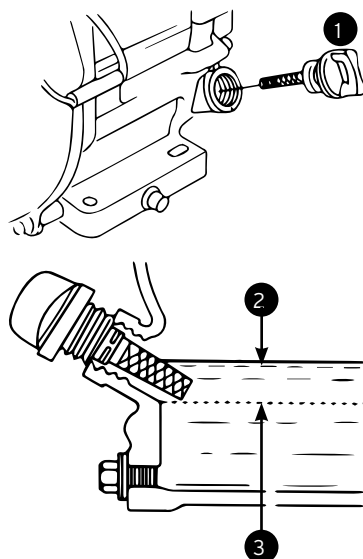
- Check whether the machine operates at the proper rotational speed at full throttle (3,500 RPM)
- Never attempt to change the default engine settings.
- Inspect the blades. Blades may bend on impact with a hard object under the surface. To avoid damage to the lawn, bent blades must be straightened.
(read § 11.4.4; page 73)
- Check that there is no build-up of dirt in the blade compartment.
- Check that there is no seed left in the seed reservoir and in the seed distribution system.
- Check if the depth setting needs to be adjusted due to wear of the blades. (read § 9.4.1; page 38)
- Check that the chains are sufficiently lubricated. (read § 11.5.1; page 74)
- Check that no parts are deformed, that welded seams are not cracked and that parts are not excessively loose.
- Check that there is no damage to the elements of the seed distribution system.

If problems are found, carry out the necessary repairs first. Consult your authorised ELIET service center for assistance if necessary or for spare parts. Find an ELIET service centre near you at **www.elieta.eu**.

11.4.2. Checking and topping up the engine's oil level

If the oil level in the engine drops below a certain level, the engine will automatically switch off. At that point, the machine will have been operating with insufficient lubrication for some time. This can increase wear, which will reduce the life of the engine. In order to avoid this situation, regular checks on the oil level are essential.

- Place the machine on flat ground so that the engine plate is horizontal.
- Switch off the engine.
- Leave the engine to cool down for about 15 minutes.
- Now unscrew the filler cap **(1)** from the crankcase.
- The oil must be visible up to the edge in the opening of the filler cap **(2)**.
- If the oil tank is not filled to the brim, this indicates a lack of oil.
- If the oil level is too low **(3)** it suffices to add some oil via the filler opening until the proper level has been reached. Continue to add oil until the desired level is reached.
- Always use recommended oil (see the list of recommended oils in the engine manual).
- Since the location of the filler opening is tricky to reach, we recommend using a tube or special funnel to avoid oil spills. Always clean the funnel before passing any oil through it.



Please note: Bear in mind that it will take a while for the oil to fully descend into the crankcase. Make sure you leave small intervals when filling the oil so that the dipstick gives the correct oil level reading. Oil shortages cause severe, irreparable engine damage. (This type of defect is not covered under warranty).



For your information: The above description is for indication purposes. You must also read the manual provided by the engine manufacturer.

Work slowly and carefully when topping up the oil, as the amount of oil to be added is mostly quite small. Avoid spilling oil. Oil spills must be wiped up immediately with paper. Dispose of the soaked paper in the chemical waste.

11.4.3. Cleaning the air filter

The purpose of the air filter is to clear the air that is sucked in for combustion, and to protect against sand and dust particles. There are two important issues in this respect:

- The filter may not become damaged; a damaged filter could expose the engine to unfiltered air.
- The filter must allow sufficient air to pass through it, ensuring an optimum air-fuel ratio for proper combustion. Regular inspection of the air filter is essential.

How to clean the filter:

- Release the black protective cover by loosening the screw on the top side.
- There are two types of filters. In addition to the common foam filter, there is also a paper filter.
- Loosen the attachment bolt at the top of the filter cartridge so that you can remove it.



Please note: When removing the air filter, always make sure that no objects can fall into the opening of the carburettor. As a precaution, cover it with a clean piece of paper.

- Foam filters can be cleaned by rinsing them with some petrol and blowing them with compressed air.
- Paper filters are cleaned by dusting them down or cleaning with compressed air.

Please note: Keep the air pistol at a good distance from the filter to prevent the powerful jet of air from perforating the cartridge filter.

- If the air filter is too dirty, it should be replaced. Contact the engine manufacturer's service centre and order the original replacement air filter there.

Please note: Always make sure that the filter cartridge fits nicely in its place. It is important to make sure there is no gap through which unfiltered air can enter the engine. Dirty air in the engine will result in irreversible engine damage!

- After cleaning, return all parts to their original positions.



Please note: In the event the machine has toppled over for some reason, check the air filter immediately. The tilted position of the engine may have caused oil to seep from the crankcase via the carburettor onto the air filter. Oil on the filter paper obstructs the air passage. Soiled filters must be replaced immediately.



For your information: The above description is indicative, please also read the engine manufacturer's manual on the subject.

11.4.4. Checking the blades

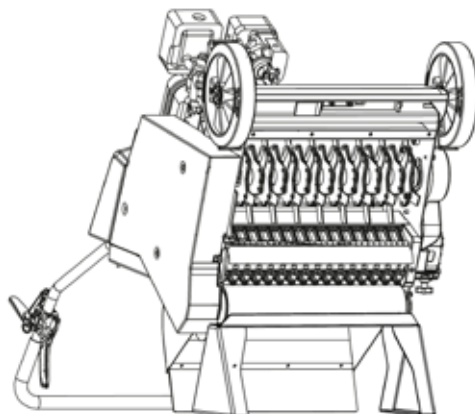


Please note: when performing this type of maintenance, always wear safety gloves and safety goggles.



Please note: Before performing a blade inspection, make sure that the engine is always switched off and the spark plug cable is detached from the spark plug.

- After each session, the blades must be subjected to a quick inspection.
- To see the blade axle clearly, the DZC450 should be positioned on the Easy Clean™ maintenance support.



- Prior to the inspection, the machine must be cleaned so that no damage is hidden under dirt.
- Rotate the blade axle manually and inspect each blade.

Pay attention to the following:

- Check for wear on the blades.
- Check that the blades are not bent due to impact with an object in the ground.
- Check that the attachment bolts are still tight.
- Check that no damage has occurred to the blade holders.
- Check that there is no lateral movement between the blade holders.
- New blades have a 35 mm (1.5") blade edge. When this has worn by 25 mm (1"), the blades must be replaced. The depth setting will also indicate when it is appropriate to replace the blades. (read § b; page 40)
- If one or more blades are found to be bent, they must be straightened again. Use pliers for this. Ensure that bent blades are straightened in line with the other blades on the same holder. If the damage to the blade does not allow further use, it must be replaced.



Please note: In the event of breakage, a new blade must always be fitted to the holder. The length of the new blade must be sharpened to the same length as the other blades.

- If, while checking the bolt tension, it is noticed that bolts or nuts have worn out, they must be replaced. Always make sure that the nuts are mounted on the belt drive side.
- If you notice any damage to one of the blade holders, they must be replaced before the machine is used again. Consult your authorised ELIET Service center for more information.
- If you notice that the blade holders are loose on the axle and that there is lateral movement between the blade holders and bushings, stop using the machine, to prevent consequential damage. Please contact your authorised ELIET service center to tighten the blade axle.

11.5. Maintenance after every 25 hours of operation

11.5.1. General lubrication treatment

To keep the machine in top condition and maintain the optimal performance it is essential to regularly lubricate the machine. ELIET recommends lubricating the machine and checking surfaces subject to friction/wear (periodicity of approx. 25 hrs).

LOTS OF DUST => REGULAR CLEANING AND LUBRICATION

Machine parts requiring lubrication:



Please note: The engine must also be switched off before lubricating. Always lock the machine in transport mode beforehand. Protective gloves must also be worn for this maintenance.



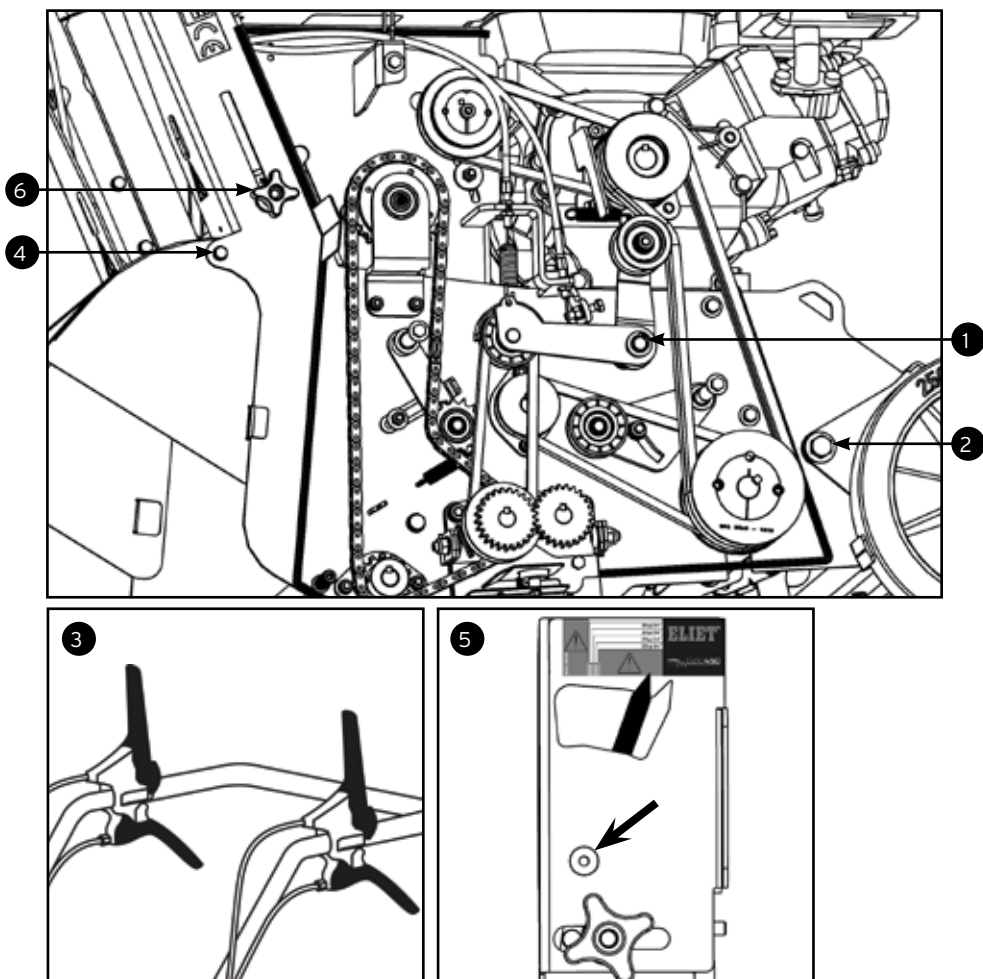
Please note: Most lubricants are flammable. Always read the safety messages on the packaging. Keep away from open fire or hot objects when using lubricants.

I. Hinges

Hinges are places where two moving parts are attached to each other. Because this is a turning point, it involves friction. Friction without lubrication leads to wear, excessive play and finally to breakage.

The points with dry lubrication are:

1. Hinge of the belt tensioners
2. Hinge of the front wheelbase (L & R)
3. Hinges of the levers (L & R)
4. Hinges of the protective cover at the back (L & R)
5. Hinge of the flow setting
6. Hinge of the handlebars (L & R)



The machine has a number of hinges that require lubrication:

To reach the points indicated, some protective covers must be removed. (read § 15.1; page 99)

To avoid wear and subsequent play on hinges, lubricant must be applied to the contact surfaces that undergo friction:

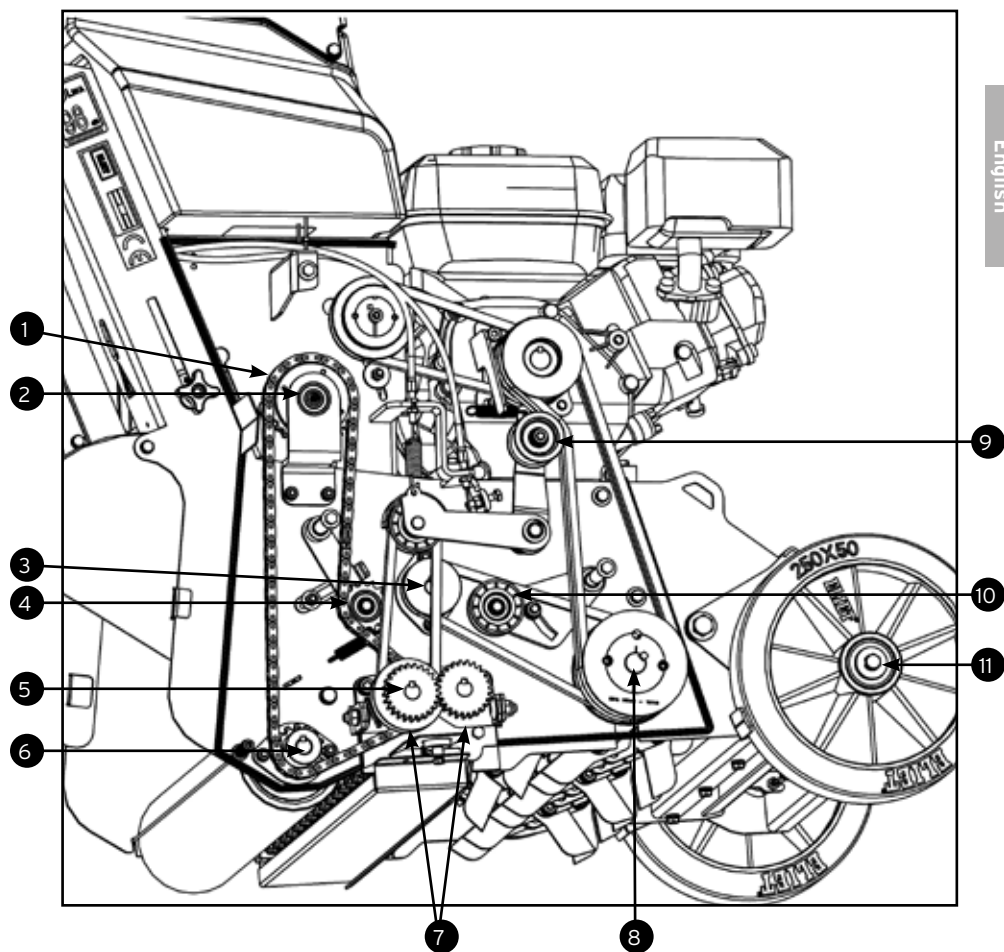
- Before applying fresh lubricant, it is essential to first clean off any old, dirty lubricant and remove any dust sticking to the hinge.
- Where possible, the hinging parts must be disassembled for proper cleaning of all elements within.
- Spray the lubricant on the hinge parts. Leave the product for a few minutes to enable it to perform its degreasing action.
- Wipe the parts clean. Repeat the procedure if necessary to ensure that the parts are completely clean.
- Make sure that all of the cleaning agent is either evaporated or wiped away.
- Apply new lubricant to the friction areas. Ensure that it covers the entire contact surface.
- ELIET recommends NOVATIO CLEARLUBE, This is a lubricant with an extremely long operating time, excellent adhesion and resistance to high pressure. It is available in spray cans for easy application.
- Reassemble the hinge and tighten all parts.

II. Bearings

The main risks for bearings are an excessive load, dirt and lack of lubrication. Sowing machines are not the best medium to guarantee a long operating life of the bearing. Regular maintenance is therefore recommended.

The following bearings are fitted in the machine:

1. Nylon bearing bushing in the transmission box support (1x)
2. Ball bearing in the transmission box support (1x)
3. Ball bearings in the ejector accelerator (L & R) (2x)
4. Ball bearings in the chain tensioner (1x)
5. Ball bearing in the tension roller of the seed distributor (1x)
6. Ball bearings in the traction roller (2x)
7. Nylon bearing bushes for transport augers (L & R) (4x)
8. Ball bearings for blade axle (L & R) (2x)
9. Ball bearings for tension roller of blade drive (2x)
10. Ball bearings for tension roller of drive of ejector accelerator (2x)
11. Ball bearings in the front wheels (L & R) (4x)



To reach the points indicated, some protective covers must be removed. (read § 15.1; page 99)

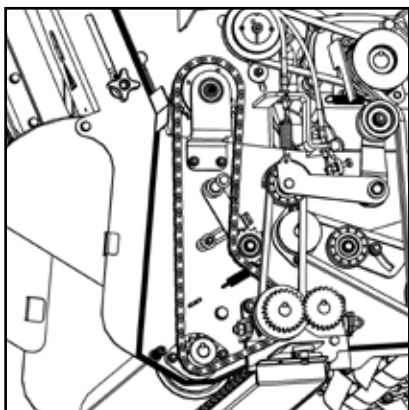
The bearings have dust seals to keep the dirt out. However, the lubricant applied on the bearing at the factory will also become old and dry. To compensate for this, new lubricant must be added from outside.

To prevent any dirt from penetrating the bearing together with the lubricant, the bearing must be cleaned first.

- Spray NOVATIO KLEENSPRAY onto the bearing seals and joints. The liquid will soak off any dust attached to the bearing.
- Leave the cleaning liquid to work for a few minutes.
- Remove all the dirt clinging to the bearing with a soft cloth.
- Apply a second round of spray to the bearings, particularly on the joints. The cleaner will dissolve the grease that has dried up in the joint. This is necessary to ensure that new grease can penetrate the joint.
- Blow compressed air into the bearing joints to enable the KLEENSPRAY to expel all the dirt.
- Wipe away all the spray and wait 10 minutes to allow any residue to evaporate.
- Now apply a new layer of lubricant. Spray a generous amount of NOVATIO PTFE OIL into the joints of the bearing seals and the bearing bushing. During application, twist the bearing so that lubricant can be applied along the entire length of the bearing joint.
- This is a thin lubricant with excellent penetrating properties. It is corrosion resistant and moisture and dust resistant. It also has good lubricating properties, even at high temperatures.
- Turn the bearings by hand so that the lubricant can spread uniformly.
- After a few minutes, spray NOVATIO PTFE OIL into the joints a second time and allow it to work in again.
- After the bearings have been lubricated, replace the necessary protective caps in their original position.

III. Lubricating the chain and chain sprockets

The chain grease applied will have worn away after a certain time, or dirt and dust will be stuck to it. Regular lubrication is needed to prevent wear and tear on the chain transmission. The DZC450 includes one Simplex chain for the transmission for the roller wheels to the seed distribution system.



For this type of maintenance, the large protective cover must be removed.(read § 15.1; page 99)

- It is useful, before lubricating the chain, to first clean off the chain and wipe away any old lubricant cluttered with dirt and debris. The use of KLEENSPRAY may help to soak off and dissolve any old grease.
- Wipe away any old grease before applying new lubricant. Use compressed air to clean the chain.
- To prevent the lubricant from wearing away too quickly due to the rotation of the line shaft or the gravitational pull of the chain, we opt for a less viscous and more adhesive oil.
- Since both the chain inside and the contact surface with the sprockets need to be lubricated, ELIET recommends using a combination of two lubricants.
 - NOVATIO PTFE OIL is a thin liquid lubricant and will easily penetrate the chain links.
 - NOVATIO CLEARLUBE, a more viscous oil, will cling to the outside of the chain. This lubricant diminishes the friction between the chain and the sprockets.
- Apply the PTFE oil first. Push the machine while the lubricant is being applied, that way the chain is in motion and every part gets lubricated.
- After applying the PTFE oil, leave it to work for about 5 minutes. Then apply the Clear Lube.
- Spray the Clear Lube on the inside of the chain. Push the machine again so that the chain rotates when the lubricant is applied.

- Remove any lubricant that has gotten onto the pulley parts before the seed distribution system is switched on. Thoroughly degrease the pulley parts and belt with KLEENSPRAY. There must be no slippage here, otherwise the seed will not be sown correctly.
- When replacing the protective cover, ensure proper closure to keep the inside free from dust.



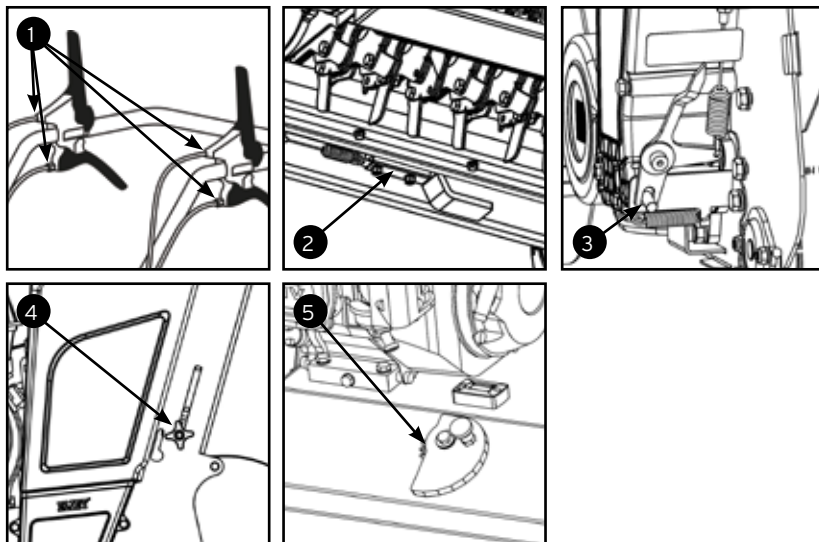
Please note: Particularly during dry periods, where dust will develop while working, you will need to check and lubricate the chain after each session.

IV. Friction surfaces

Friction surfaces include all machine parts that are subject to wear from lateral friction with other parts. Here, too, it is important to apply a film of lubricant between the rubbing parts that will reduce movement resistance and minimise wear.

These surfaces in the machine include:

1. Cable guides
2. Locking pin for transport mode
3. Fork for movement of seed slider
4. Height adjustment handlebars
5. Locking pin depth adjustment



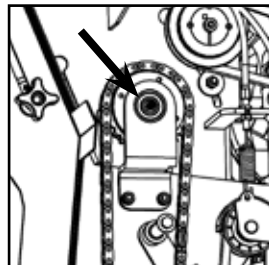
- Proper functioning of the control levers is crucial and regular lubrication of the cables is therefore of vital importance.
- In particular during dryer periods, operating the machine will produce a lot of dust. This settles everywhere, including on the cables.
- Prior to lubricating, the cables must be cleaned. KLEENSPRAY is again an ideal aid in this regard.
- Spray the cleaner into the cable guide and at the same time move the cable back and forth in the guide so that the fluid spreads.
- Use compressed air to clean the cable guide of both cleaner and dirt.
- Repeat this procedure until the guides are completely clean.

- New lubricant may now be sprayed into the guide.
- The procedure is the same for all other friction surfaces mentioned earlier: first loosen old grease and dirt with KLEENSPRAY and wipe it away.
- Then spray NOVATIO PTFE OIL on the friction surface. (NOVATIO PTFE OIL for cable guides).

V. Lubrication nipple

One lubrication nipple is fitted on the machine. This is located at the end of the output axle of the transmission box and serves to lubricate the freewheel bearing in the torque limiter.

- In order to reach the lubrication nipple, the large protective cover must be removed.(read § 15.1; page 99)
- Use a lubrication pump to slowly pump extra lubrication grease into the lubrication nipple. Use the lubricant shown in the list on '§ 11.3. Lubricants on page 70'.



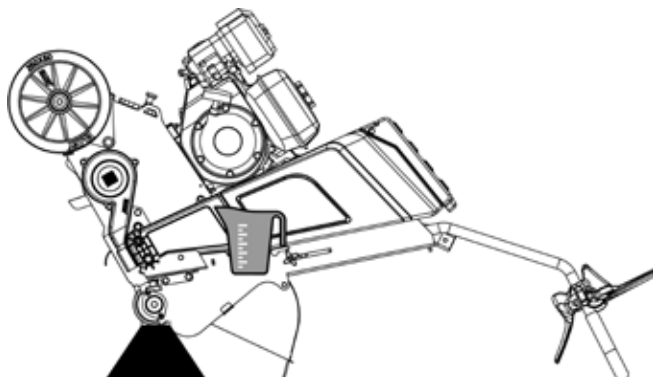
Please note: As soon as you feel pressure when pumping or the grease comes along the joints from the bearing, stop immediately.

- Lubricant that flows back from the joints or along the grease nipple when removing the pump hose, must be wiped away with a rag.
- Replace the protective covers as they were originally fitted.

All lubricants indicated are available from your authorised ELIET dealer.

11.5.2. Changing the oil

- Before changing the oil, allow the engine to run briefly. When the oil is warm it is more runny, allowing it to run faster out of the engine block.
- Always turn off the engine before replacing the oil.
- Choose the drain plug on the left of the engine base.
- Put the DZC450 into the Easy Clean™ to change the oil.



- Clean the area around the oil filler cap on the other side of the engine and unscrew the cap, allowing the crankcase to vent while emptying the tank.
- Have a two litre collection reservoir ready before unscrewing the oil drain plug.
- Now loosen the oil drain plug. Use a 10 mm ring wrench.
- Empty the full contents (0,6 l) from the engine. Make sure that all oil is properly collected in the receptacle.
- Reposition the oil drain plug and tighten it. **Please note:** do not tighten it too much to avoid the engine base cracking. Wipe away any spilled oil with a clean cloth.
- Place the machine on level ground.
- Clean the area around the oil filler openings to prevent dirt from entering the crankcase.
- Fill approx. 0.6 litres of oil into one of the two oil filler openings. Fill until the oil reaches the edge of the filler opening. Remove any spilled oil after filling.
- Wait a few minutes to allow the level to stabilise before replacing the oil filler cap. If necessary, add some extra oil and then replace the cap on the filler opening.



Warning: Too little oil in the engine causes severe and irreparable engine damage. (This type of defect is not covered under warranty).

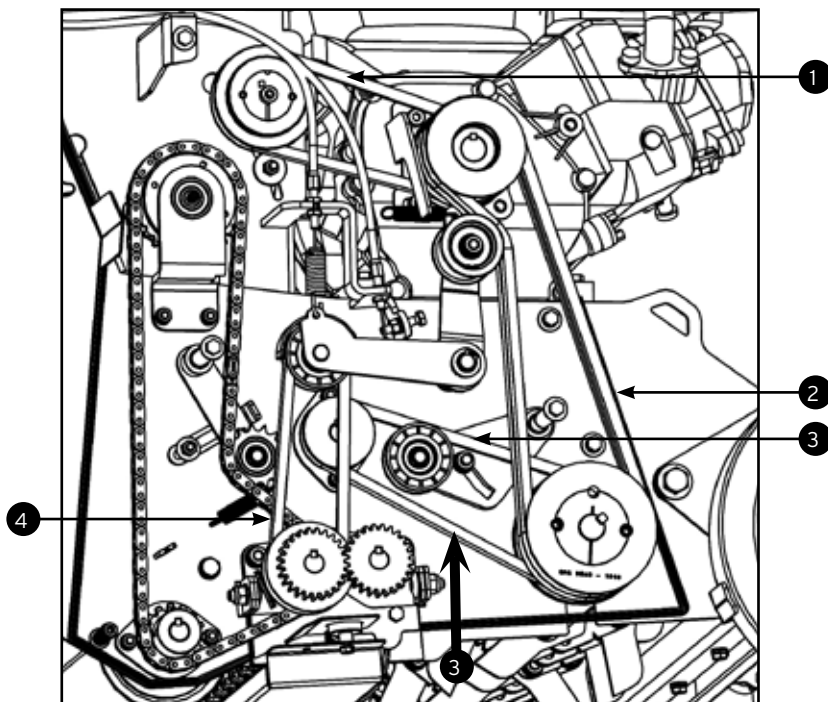


Warning: Respect the environment: bring the oil to an authorised collection point for professional processing or recycling. Never pour oil down the drain.

11.5.3. Checking and adjusting the belt tension

The DZC450 contains four belt drives:

1. Belt drive of the engine crankshaft to the transmission box.
2. Belt drive from the engine crankshaft to the blades (x2)
3. Belt drive from rotor to ejector accelerator
4. Belt drive from tension roller of the seed distributor to the seed distributor.



Warning: when tensioning belts, you come into contact with the belt drive.

There is a risk of fingers getting trapped between the belt and pulley. Be careful and wear gloves.



Please note: turn the engine off before checking or adjusting the drive belts.

Let these cool off long enough to avoid burning yourself on the exhaust.



Please note: Always wear suitable clothing for performing this type of maintenance.

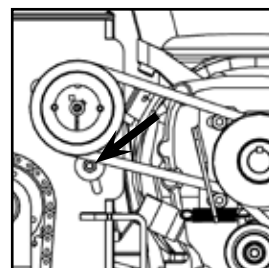
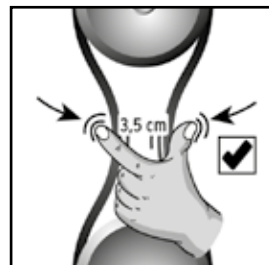
The following describes the procedure for tightening the belts.

I. 1st belt drive (engine - transmission box)

This is the primary belt drive which transfers the engine power directly to the gearbox. Since the transmission box makes a large internal reduction, the power needed to drive it is rather limited. The belt that is used has a small profile. This belt is permanently under tension without decoupling via a belt tensioner.

If, while working or driving, you have the feeling that the machine is losing traction under load or makes a squeaking noise when the traction lever is engaged, check the belt tension as this is often a sign that the belt is slipping:

- In order to tighten the belt, the large protective cover must be removed. (read § 15.1; page 99)
- This belt does not need to be tightened too much. **Rule of thumb as a check:** press with thumb and forefinger halfway between the two pulleys the belt parts towards each other. If it is correctly tightened, there will be a distance of at least **3.5 cm (1,4")**. If it is possible to press the belt parts more tightly, the belt tension must be adjusted.
- You can tighten the belt by tilting the transmission box further. It is possible to adjust it.
- To do this, loosen the fixing nut M6 one turn (turn counter-clockwise) (socket wrench 10 mm)
- Push the transmission box upwards and tighten the M6 fixing nut again.
- Check again and, if necessary, repeat the procedure described above until the correct tightening is achieved.
- After performing this maintenance, the belt protection cap can be remounted to its original position.



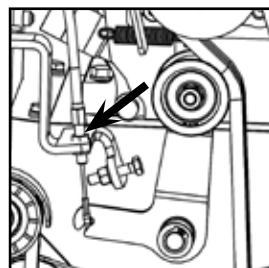
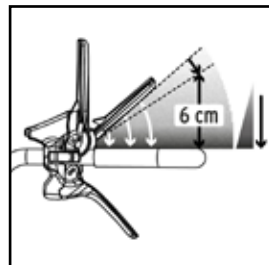
II. 2nd belt drive (blade drive)

The two drive belts are tightened with a flat tension roller which is pressed against the back of the belt when the blade handle is engaged. This belt drive transmits power from the engine to the blades and, thus, also carries the heaviest load. It is also a belt transmission that is frequently switched on and off, and it is therefore subject to slippage.

If the belt makes a squeaking noise when placed on the ground or under heavy load, this is a signal to adjust the belt tension.

- In order to tighten the drive belts, the large protective cover must be removed.
(read § 15.1; page 99)

- **Rule of thumb as a check:** press with your thumb on the tensioning roller until it is fully pressed against the straps. If you squeeze the blade handle in this position, you should feel tension when it is **6 cm (2.4")** away from the handlebar.
- If this distance is less than 6 cm (2.4"), then the force of pressure from the tensioning roller will need to increase by adjusting the length of the engagement cable. For this purpose, adjustments are available at the end of the cable near the tensioning roller.
- Remove the M6 lock nut (10 mm wrench) and rotate the control guide counter-clockwise a few times. Use a 9 mm open end wrench if necessary.
- Next, test the belt tension again and adjust as needed.
- Then tighten the lock nuts again firmly to secure the setting.
- After performing this maintenance, the belt protection cap can be remounted.



III. 3rd belt drive (ejector accelerator)

The ejector accelerator is driven via the belt pulley of the rotor via a secondary belt transmission. As decoupling is done on the primary drive to the rotor, this belt transmission is permanently tensioned by a fixed belt pulley. As the load on the ejector accelerator is relatively small, this belt also has a relatively small section.

- In order to reach the drive belt, the large protective cover must be removed.
(read § 15.1; page 99)
- If you can press the drive belt centrally between the pulleys with your thumb **further than 2 cm (7/8")**, the belt will have to be tightened.

- The holder of the belt pulley is equipped with an adjuster to adjust the belt tension.
- To do this, loosen the fixing nut M8 one turn (turn counter-clockwise) (socket wrench 13 mm)
- Then manually press the belt pulley as much as possible against the belt and tighten the fixing nut firmly again. (Turn clockwise with a 13 mm socket wrench).
- Next, test the belt tension again and adjust as needed.
- After performing this maintenance, the belt protection cap can be remounted.

IV. 4th belt drive (seed distributor)

Although there is a belt here, it does not act as a drive belt but as a decoupling belt.

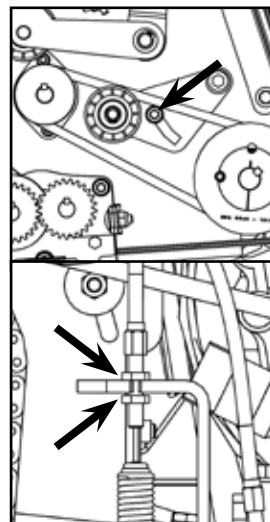
The pulley on the axle of the seed distribution mechanism consists of two halves: one half is driven by a chain and is the floating half, the other half is fixed to the auger shaft and is the driven half.

By tightening this belt, they connect the floating and driven half, which causes the seed transport augers to start rotating.

If the tension on the belt is insufficient due to stretching, slip will occur during this transfer and the seed augers will rotate irregularly, resulting in a disrupted seed pattern. This belt tension can be adjusted as follows:

- Remove the large protective cover (read § 15.1; page 99)
- At the end of the cable guide there is an adjuster.
- Loosen the counter nut on the underside of the support. Turn the nut 5 turns clockwise more towards the end of the adjuster sleeve. Use a size 10 open end wrench.
- Then also turn the nut on the top of the support in a clockwise direction so that the adjuster sleeve moves upwards in relation to the support.
- Check the tension by pressing the yellow lever on the handlebar.
- Repeat the above until you notice that sufficient tension can be applied to the belt again.
- Then tighten the nut on the underside of the support (turn counter-clockwise) to secure the setting. If the adjuster sleeve turns when tightened, it can be held in place with an open-end wrench 9.
- After performing this maintenance, replace the belt protective cover as it was originally fitted.

Tip: This coupling function of this belt can also be disturbed by contamination with lubricant from other drives nearby. Therefore, clean the belt and the treads of the pulley halves with a degreasing spray, and wipe them clean.



11.6. Maintenance after every 100 hours of operation

11.6.1. Replacing the blades

The blades of the DZC450 are individually bolted onto the blade disks. Each blade can be replaced individually.

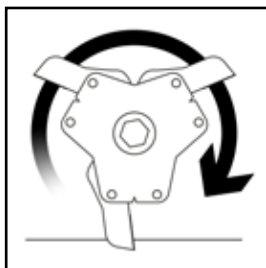
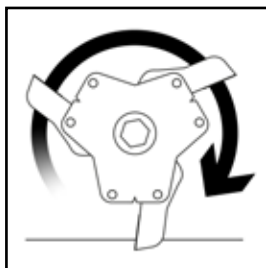


Please note: Replacing blades must always be done with the engine switched off. Carefully pull off the cap from the spark plug.

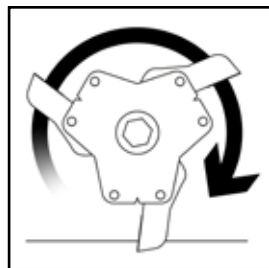


Please note: Always wear suitable clothing for performing this type of maintenance.

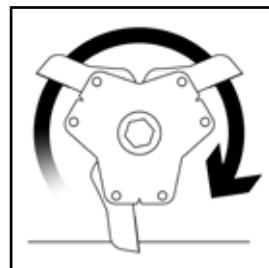
- Each blade holder disc has 3 blade positions that are positioned 120° to each other.
- Each of these three blade positions has two fixing holes, which allows the blades to be mounted in **two positions**:



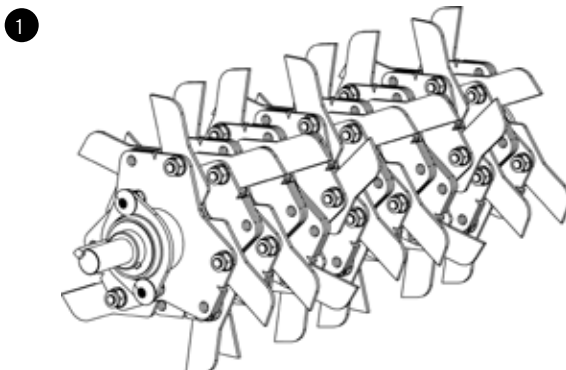
1. The blade can be mounted on **"scoop"**. The blade tip is mounted in the direction of rotation of the blade axle.
 - A blade mounted on **"scoop"** is necessary to create a groove and scoop away soil. The groove that is created has depth. Even in dry and firm soil, the groove remains at depth.
 - Blades mounted on **"scoop"** form more residual dirt and create a top dressing effect.



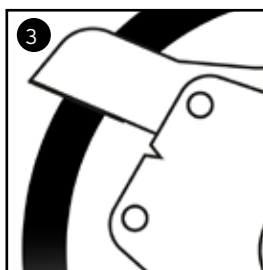
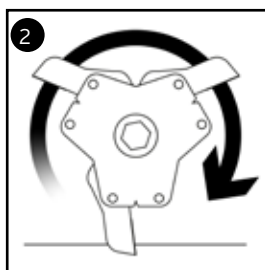
2. The blade can be mounted on **"drag"**. In this case, the blade tip is turned away from the direction of rotation of the blade axle.
 - Blades mounted on **"drag"** will only be able to create a groove by displacing and compacting the dirt. Blades that are on **"drag"** cut a smooth groove but find it more difficult to form a deep groove, especially if the ground is slightly more firm.
 - Blades that are on **"drag"** eject less residual dirt, so that the groove remains open longer.



However, you can choose to make a combination by putting one or two blades on **"drag"** per blade holder. Make sure, however, that the choice is consistently made for each blade holder. If you mount one or two blades per blade holder on **"drag"**, you will always mount them on the adjacent blade holders turned 120° so that a spiral circulation **(1)** is created.



- **Important point:** Always ensure that the blade tips are rotated 120° **(2)**. Therefore, depending on the selected blade direction, the mounting position (choice of attachment hole) must be adjusted accordingly.
- To support the blade plates, a notch **(3)** has been made on the blade plates which indicates where to place the blade tip.



- After disassembling the blades, use a spatula to clean the space between the blade plates. Blow this through with compressed air.

- New blades can always be ordered from your authorised ELIET dealer with order code BU 402 300 145.
- When assembling the new blades, the attachment bolts and nuts must always be replaced.



Please note: When installing the bolts, make sure that the nuts are fitted on the same side as the belt pulley for the drive. This ensures that the bolts are automatically tightened by the rotation of the blade axle.

After fitting new blades, the depth setting must be adjusted again.

When blades are replaced, the complete set must always be replaced in one go. You must ensure that all blades are the same length at all times. Mixing new and old blades is therefore ruled out.



For your information: Replacement blades are available with Tungsten Carbide blade tips. They do not wear down and have a longer operating life. Order code: BU 402 303 345.

11.6.2. Replacing the air filter

Despite regularly cleaning the air filter, this is still affected by wear and embedded dirt over time. Microscopic tears or dirt penetrating deep inside the filter tissue can be hard to see with the naked eye. Even so, they will affect the operation of the engine or cause wear and tear. It is therefore important to replace the air filter as a preventive measure after a certain time.

New filter cartridges can be ordered from your ELIET dealer or a service center authorised by the engine manufacturer. The order code for the cartridge filter is:

- paper: Honda 17210-ZE1 - 822
- foam: Honda 17218-ZE1 - 821

To replace it, follow the same procedure as described in '§ 11.4.3. Cleaning the air filter on page 72'.

11.7. Maintenance after every 200 hours of operation

11.7.1. Replacing belts

Over time, the belts may wear down and need replacing. Replacement parts must always be obtained from an authorised ELIET Service center.

- Belt 1: (engine crankshaft - transmission box) BA 521 405 120 (1x)
- Belt 2: (engine crankshaft - blade drive) BA 527 708 890 (2x)
- Belt 3: (blade axle - ejector accelerator) BA 521 106 300 (1x)
- Belt 4: (tensioning roller seed distributor - seed distributor) BA 521 104 870 (1x)

Follow the procedure below for replacing the belts:



Please note: Belt tightening or replacement must be done with the engine switched off. Put the starter knob of the engine in the OFF position and pull the spark plug cable from the spark plug.

- In order to replace belt 1 and belt 3, you must always remove belt 2.
- To remove belts 2 simply unscrew the belt holder. Unscrew the two M8 nuts for this. Use a size 13 socket wrench.
- Now lift the two belts one by one out of the grooves of the pulley and remove them.
- To remove belt 1, first remove the belt tension by loosening the M6 fixing nut (socket wrench 10) and tilt the transmission box downwards.
- Lift the belt out of the belt pulley of the transmission box and remove it completely.
- To remove belt 3, first loosen the tensioning pulley. To do this, loosen the M8 clamping nut (socket wrench 13) and turn the disc holder downwards.
- Now lift the belt out of the pulley of the ejector accelerator so you can remove it afterwards.
- Now replace the new belts in reverse order.
- Now re-apply the correct amount of belt tension (read § 11.5.3; page 84)
- Place the belt guide at a distance of 2 mm (0.1") parallel to the belts of the blade drive. Fix this position by tightening the two M8 nuts firmly clockwise (socket wrench 13).
- After calibrating and testing the belt tension, reposition the protective covers.

11.7.2. Replacing the belt tensioning roller

The DZC450 has 1 belt drive which has a decoupling via a clamping roller and 1 belt drive with a permanent belt pulley. Over time, the bearings of the tensioning roller and the tread of the belt pulley can show wear... To prevent this, the tensioning roller will need to be inspected regularly and possibly replaced as a precaution.



Please note: For performing this maintenance, switch the engine off and pull the spark plug cable from the spark plug.

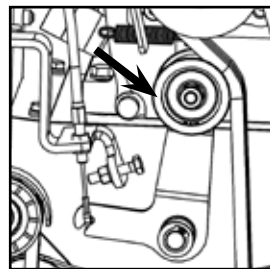


Please note: Leave the tensioning roller to cool down before disassembling it.

1. Tensioning roller of the belt tensioner and blade drive

The running roller that tightens the belt when the blade decoupling lever is pressed is under extreme pressure:

- The runner rotates against the belt at 2,300 RPM.
- Due to friction with the belt the latter becomes very hot; lubricants become liquid and will leak from the bearings as a result.
- During periods of drought, dust will inevitably develop when operating the machine. Sand and dust will find their way into the bearings and cause damage.



Due to the combination of these three factors the tensioning roller is sensitive to wear. Regular lubrication can counter accelerated wear.

As soon as the bearings start to make a growling sound, replace the bearings of the tensioning roller as a precaution. In the event of wear on the tread, the complete tensioning roller must be replaced. Failure to do this will result in blockage of the tensioning roller and consequently, damage or breakage of the belt.

How to proceed:

- Disassemble the protective cover of the machine (read § 15.1; page 99)
- Turn loose the centre M8 bolt from the tensioning roller, hold the nut against the direction of rotation on the back side of the tensioning roller's holder (socket wrench and ring wrench 13).
- If there is serious damage or wear and tear on the tread, then the tensioning roller should be replaced. The tensioning roller can be ordered from an authorised ELIET dealer. (order code MPA 01 350 030)
- If the tread exhibits no severe wear and tear, then you should only replace the bearings.
- For stability purposes, this tension roller is provided with two bearings.
- On the front of the roller, you will notice a safety clip, which secures those bearings in the compartment. Using a special tong, you will be able to remove the safety clip.
- Using an axle and a hammer, the bearings can be tapped out of the compartment. To simplify this, you can spray some penetrating oil onto the bearings beforehand.
- The replacement bearings can be ordered from an authorised ELIET Service Center. (order code BL 001 203 703) (x2)
- Press the new bearings into the compartment evenly. For this, press on the outer casing of the bearing, taking particular care not to damage the dirt seal.
- If the two bearings are pushed in completely to the back of the compartment, then secure them into place by putting the safety clip back into the groove.
- Apply some extra lubricant to the bearing joints to avoid dirt penetrating around the new tensioning roller.
- Remount all elements to their original position and securely tighten the tensioning roller.
- Re-assemble the black cover as it was originally. (read § 15.1; page 99)

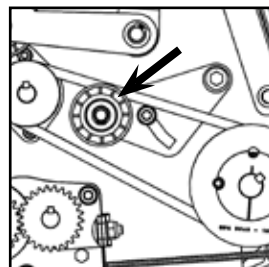
II. Replacing the belt pulley of the belt tensioner of the ejector accelerator

The belt pulley is made of plastic and has one bearing. Since a belt pulley is used to tighten the belt, there is a larger contact surface, which results in less slippage. Since this pulley has no function as a coupling, there is also less wear and tear during frequent switching on and off. Nevertheless, it is advisable to regularly inspect the condition of the V-groove and check for possible play on the bearing. As soon as wear and tear is detected, the belt pulley must be replaced.

(order code BA 564 705 002)

How to proceed:

- Disassemble the protective cover of the machine (read § 15.1; page 99)
- The belt pulley is secured to the axle by means of a locking clip. A special tong can be used to remove the locking clip from the groove.
- Press the belt pulley off the central axle.
- Slightly sand the axle and apply some lubricant so that the new belt pulley fits smoothly.
- Apply some extra lubricant to the bearing joints to avoid dirt penetrating around the new belt pulley.
- Put the safety clip back into the groove.
- Re-assemble the black cover as it was originally. (read § 15.1; page 99)

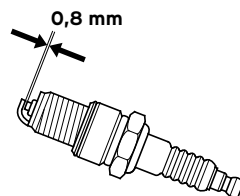


11.7.3. Checking and/or replacing the spark plug

ELIET recommends the following spark plugs:

Honda GX 200 - 6.5 hp	BPR6ES (NGK)
-----------------------	--------------

- Turn off the engine and pull the cable from the spark plug.
- Clean the area around the spark plug and remove the spark plug from the cylinder head.
- Using a feeler gauge, check whether the distance between the electrodes is 0.8 mm.
- The spark plug must be replaced if it shows heavy deposits or is very dirty.
- Take the following steps to verify ignition quality:
 - Put the spark plug cap back on.
 - Grab the rubber of the spark plug cap and press the outermost electrode against the mass of the engine.
 - Pull the starter cord.
 - Check for sparks between the electrodes.
 - The spark plug is in good condition if the sparks are clear and neatly centred between the electrodes.
 - Weak, irregular and off-centre sparks between the electrodes indicate that the spark plug must be changed.



Please note: Fitting or changing a spark plug must be done with utmost caution so as not to damage the screw thread in the engine. Secure the spark plug with a torque of 20 Nm.



For your information: The above description is for indication purposes. You must also read the manual provided by the engine manufacturer.

11.8. Maintenance after every 500 hours of operation

11.8.1. Replacing chains and sprockets

Due to the low rpm, the chain and sprockets are subject to little wear and tear. If over time you notice that the teeth are worn, the sprockets and chain must be replaced. Contact your authorised ELIET dealer for assistance.

- Order code chain: BA 101 099 020
- Order code chain tensioner: BA 198 010 150
- Order code sprocket traction roller: BA 171 015 150
- Order code sprocket torque limiter: BA 240 107 051
- Order code sprocket seed distributor: MPA 01 490 280

11.8.2. Chain tightening

The DZC450 has 1 chain drive, namely the chain that drives the seed distribution system and traction.

- Due to the low rpm and the limited load, a single chain was chosen for the machine (Simplex).
- The chain tensioner keeps the chain continuously under tension by means of a spring and compensates for any stretching that might occur in the chain. There is no need to actively tighten the chain.

12. Storing the machine



Clean the machine (read § 9.7; page 57)

When storing the machine for an extended period, it is recommended to follow the steps below:

- Clean the entire machine thoroughly before long-term storage. (read § 9.7; page 57)
- Make sure that the seed reservoir is completely empty when storing the machine. Seed that remains in the seed reservoir or in the seed distributor may germinate and clog up the seed outlet. Use a vacuum cleaner to completely remove the last seed residue.
(read § 9.6.5; page 56)
- Carry out comprehensive maintenance (25-hour cycle).(read § 11.5; page 74)
- Carry out a complete lubrication.
- Check all nuts and bolts and tighten them where necessary. Most bolts require the use of two wrenches of 10, 13, 14, 17 or 19 mm and Allen keys 4, 5 and 6.
- Empty all fuel from the tank. This can be done simply by letting the engine run until the machine hits empty. Use a siphon if necessary, to pump the petrol into a jerrycan.
- Remove the spark plug. (read § 11.7.3; page 94) Spray some MoS₂-based penetrating oil into the cylinder. Pull the starter cord until the piston is in its uppermost position. Replace the spark plug.
- To avoid rust on the machine, touch up all chipped areas or treat them with anti-rust grease. Original paints/enamels in the appropriate colours are available from your ELIET dealer.
- Store the machine in a cool, dry place, away from possible rain. If necessary, cover it with a tarpaulin.
- Always allow the machine to cool down before storage.
- If the machine is stored outdoors, it must be properly covered with a tarpaulin. Avoid rain/water from splashing on the machine. ELIET highly recommends a sheltered storage place.

13. Equipment specifications



Engine	Honda GX200
Capacity	6.5 HP
Engine type	Petrol
Fuel tank capacity	3 litres (0.8 gallons)
Operating width	450 mm (18")
Number of blades	45
Type of blades	self-sharpening Permanently Sharp Blades™ (3 mm - 0.1")
Rotor	Ø 230 mm (9")
Work depth	recommended 8 to 10 mm (0.3" to 0.4") (setting: 13 positions - 2.5 mm increment per position)
Number of sowing lines	15
Sowing spacing	27 mm (1")
Seed distribution system	ELIET Helix Seed Duct™ System
Sowing activation	control on handlebar
Seed flow setting (see page 43)	20 gr/m ² - 25 gr/m ² - 30 gr/m ² - 35 gr/m ²
Seed reservoir capacity	50 litres (13 gallons)
Finishing	top-dressing effect above seed bed (Topdress Rotor™ Ø 100 mm)
Traction	roller drive (mechanic 1 FWD speed)
Speed	2 km/h - 1,25 m/h
Roller	rubberised roller Ø 100 mm x 450 mm (Ø 4" x 18")
Sound level Lw(A)	101 dB(A)
Dimensions (L x W x H)	1430 x 650 x 1000 mm (56" x 26" x 39")
Weight	125 kg (276 lbs)
Comfort	low-vibration handlebars
.....	handlebar height adjustable 900 mm - 1000 mm (35" - 39")
.....	all controls on handlebar, intuitive set-up
.....	simple, easy to understand design
.....	good visibility of seed level in seed reservoir
Standard accessories	Easy Clean™ maintenance support
.....	Clean tool

14. EC Declaration of Conformity



Machine.....Overseeder
TypeELIET DZC450
Model number MA 033 010 206

This machine has been designed and built according to relevant specifications from the following Directive:

EN 13684 Garden equipment - Pedestrian controlled lawn aerators and scarifiers - Safety
The ELIET machine factory hereby declares that after performing a hazard analysis, it is fully aware of the potential hazards and risks associated with the machine. Based upon this knowledge, the necessary steps have been taken in line with Machine Directive 2006/42/EEC in order to ensure full operator safety when the machine is used correctly.
The value of the measured sound power and the guaranteed sound power were obtained by applying the procedures described in European Directive 2000/14/EC Annex III/B 49 and based on certain regulations from EN 13684.

Measured sound level Lw(A): 99 dB(A)
Guaranteed sound level Lw(A): 101 dB(A)

Date: 01/07/2020
Signature:

Frederic LIETAER
Business Manager ELIET EUROPE NV
born 02/01/1975

ELIET EUROPE NV
Diesveldstraat 2
B - 8553 Otegem
Belgium
Tel: +32 56 77 70 88
Fax: +32 56 77 52 13
E-mail: info@eliet.eu

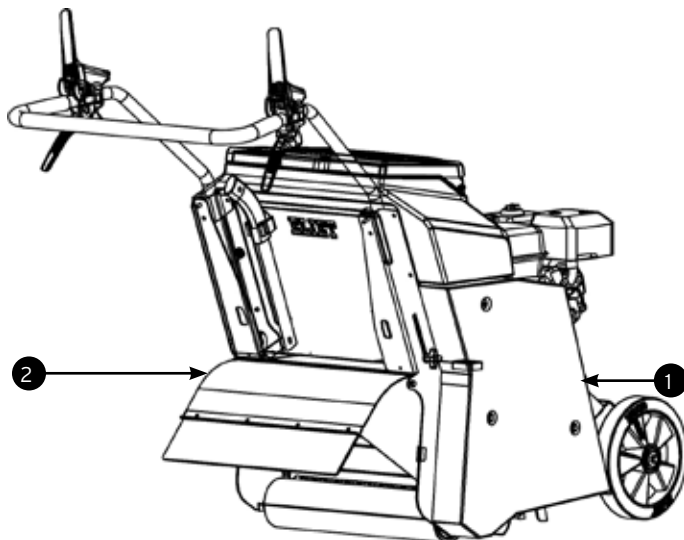
15. Appendices

15.1. Removing the protective covers

Before performing any maintenance, the protective covers must be removed in order to reach the machine parts or drives that require attention. Proceed as follows:

There are two protective covers:

1. Large protective cover for drives
2. Protective cover for transmission box



Please note: Removing protective covers is considered to be a maintenance operation. Consequently, the engine must be turned off and appropriate clothing must be worn.



Please note: Protective covers are intended to shield off dangerous areas to avoid accidents. It is therefore strictly prohibited to operate the machine or to activate the engine or any drive when protective covers are removed.



Please note: Anyone who removes a protective cover should be aware of the fact that they are creating a dangerous situation and are therefore responsible for ensuring safe circumstances in an alternative manner. They must therefore always switch off the engine and remove the spark plug cap to prevent third parties from starting the machine beyond their control.



Please note: Always check that no cables are trapped between the chassis and the protective cover each time they are put back.

- The large protective cover is mounted with 3 M6 attachment bolts.
- Use a socket wrench 10 to unscrew the three bolts counter-clockwise.
- When removing, make sure that the rubber sealing strips slid onto the edge of the protective cover do not go missing.
- The protective cover of the transmission box is attached with 4 M6 bolts.
- Use a ring wrench 10 to unscrew in a counter-clockwise direction.
- When removing these covers, always take the opportunity to clean the hidden areas behind them and to remove dirt accumulations.

15.2. Torque for bolts

Bolt head in accordance with DIN 931, DIN 912, etc.

Screw thread tolerance class		Torque (Nm)	
		8.8	10.9
Normal screw thread type	M4	3.0	4.4
	M5	5.9	8.7
	M6	10	15
	M8	25	36
	M10	49	72
	M12	85	125
	M14	135	200
	M16	210	310
	M18	300	430
	M20	425	610
	M22	580	820
	M24	730	1050
	M27	1100	1550
	M30	1450	2100
Fine screw thread type	M8 x 1	27	39
	M10 x 1.25	52	76
	M12 x 1.5	89	130
	M14 x 1.5	145	215
	M16 x 1.5	225	330
	M18 x 1.5	340	485
	M20 x 1.5	475	680
	M22 x 1.5	630	900
	M24 x 2	800	1150
	M27 x 2	1150	1650
	M30 x 2	1650	2350

(Friction coefficient ↔ = 0.14)

16. Hazards

Please find below a list of hazards and risks connected with transporting or operating this over-seeder. Please take note of these hazards. Avoid risks by following the instructions in the manual. Bear in mind that not only the user but also third parties can run a risk. Ensure that bystanders are always kept at a safe distance.

- Injuries from flying dirt and stones from the outlet while the machine is in operation.
- Injuries from flying dirt and stones while lifting the machine into transport mode.
- Injury caused by flying objects following the breakage of a blade or part of the blade axle or the ejector accelerator.
- Risk of strangulation or amputation if loose clothing becomes pulled into drives or the blades.
- Risk of cuts to feet from rotating blades.
- Risk of injury/amputation to hands due to contact with rotating blades when reaching under the machine (along the edges).
- Risk of injury/amputation to hands due to contact with rotating blades when reaching under the machine along the outlet side.
- Risk of crushing or jamming fingers due to contact with rotating ejector accelerator when reaching into the machine from the outlet side.
- Risk of injuries from contact with the blades during unclogging, maintenance or cleaning activities.
- Risk of pinching or bruising when the seed reservoir lid slams shut.
- Risk of bruising when the machine is lowered, namely at the transition from transport mode to operation mode.
- Risk of breaking or bruising fingers when rotating in the auger of the seed reservoir.
- Risk of breaking, entangling or severing fingers or other limbs when turning in chain drives after removing chain protectors.
- Risk of breaking, entangling or severing fingers or other limbs when turning in belt drives after removing protectors.
- Risk of entangling or severing fingers when turning in sprocket transmission after removing protectors.
- Risk of foot or knee joints being sprained if lower limbs end up under the roller.
- Risk of becoming crushed between the machine and an obstacle when driving.
- Risk of the hands being crushed between the steering lever and obstacle when driving through a narrow passage or carrying out a manoeuvre.
- Risk of injury due to tipping over of the machine during careless transport or loading of the machine.
- Risk of injury due to a fall when driving over a surface that cannot support the weight of the machine.
- Risk of bruising due to the kick-back effect when starting the engine.
- Risk of burns due to contact with the hot engine or exhaust.
- Risk of fire due to accumulation of waste around the exhaust or due to poor cleaning of the engine.
- Risk of electrocution due to contact with high voltage cables in the engine ignition.
- Fire risk due to fuel spillages.

- Risk of burns or skin irritation due to contact with fuel, oil or lubricants.
- Risk of intoxication due to ingestion of fuel, oil or lubricants.
- Risk of intoxication due to excessive inhalation of exhaust gases.
- Risk of irritation to the respiratory tract or lungs due to inhalation of the generated dust.
- Risk of hearing loss as a result of not wearing the proper ear plugs or hearing protection during operation.
- Risk of nervous or rheumatic disorder due to prolonged exposure to vibration without breaks.
- Risk of back problems due to irresponsible lifting.
- ...

This list is not exhaustive and is provided for information purposes only to safeguard the safety of the user.

17. Warranty conditions

Dear Customer,

We thank you for purchasing an ELIET product. Congratulations on your purchase of this machine which is sure to exceed your expectations and needs over the coming years. At ELIET, we do everything to ensure that our products function properly. That is why your product comes with a two-year warranty.

What is a warranty?

At ELIET, the design and production of our products are subject to strict quality rules. The purpose of these rules is to guarantee a long service life and permanent safety. That is why ELIET is happy to repair any hidden defects or faults during the whole run-in period (i.e. the warranty period) free of charge, provided the prescribed procedure is followed.

Warranty conditions

ELIET's warranty obligations for new machines are governed by the following conditions.

I. Warranty period

The warranty period starts the day the dealer delivers the machine to the customer (maximum one week after the purchase) and expires:

- After two years for private use.
- After twelve months or 100 hours of operation for rental use.
- After twelve months or 100 hours of operation for semi-professional and/or professional use.

To apply for this warranty the customer must register the purchased product with ELIET and complete the registration details on the website:

www.elieta.eu. If you do not have access to the internet, please complete the attached registration card and return it to ELIET.

II. The warranty does not apply in the following cases.

- Parts that are subject to wear and tear (e.g. blades, bearings, belts, chains, cogs, tyres, bulbs, fuses, etc.) are not covered by the warranty conditions.
- Defects caused by improper use, neglect or consequential damage by an external source (fall, chippings, foreign objects, accident).
- Defects caused by improper maintenance of the machine, i.e. contrary to the prescribed periodic maintenance.
- Defects caused by improper repairs carried out by parties other than authorised ELIET dealers or after using non-original ELIET replacement parts.
- Defects caused by making improper changes to the original design of the machine.
- Faults occurring as a result of machine use contrary to the instructions contained in this manual.
- Failure to observe the prescribed warranty procedure or expiry of the warranty period.

- For all problems relating to the engine, please contact an authorised service centre of the engine manufacturer.

III. Procedure

- **Step 1:** On the date of purchase, the customer registers his/her purchase online by completing the registration card on **www.elieta.eu**. In addition, the enclosed registration card must be completed on the day of purchase. The first part of the card has to be returned to ELIET within one month. The customer is required to keep all remaining parts of the card along with the purchase invoice for the duration of the warranty period.
- **Step 2:** In the event of a defect, the customer must have it verified by the authorised ELIET dealer. If the dealer finds a manufacturing defect, they may invoke the warranty under the terms specified.
- **Step 3:** Every warranty application must be accompanied by a completed official application form. Dealers may request application forms from ELIET or from an ELIET importer/agent.
- **Step 4:** The dealer orders the parts necessary to perform the repairs. Next, the dealer faxes the order form together with the completed warranty form and a copy of the registration card to ELIET.
- **Step 5:** The warranty form must be stapled to the purchase invoice and sent to ELIET or an ELIET importer/agent.
- **Step 6:** ELIET sends the parts ordered to the dealer under the regular delivery and payment conditions.
- **Step 7:** The defective part will be examined by ELIET's technical department prior to approving or rejecting the warranty. ELIET reserves the right to unilaterally decide whether or not the customer has complied with all the conditions applicable to the one or two-year warranty. Faulty components automatically become the property of ELIET.
- **Step 8:** If a warranty claim is found to be valid, ELIET will credit the parts under warranty. Customers are never entitled to a refund of labour costs.

IV. In the event of damage caused by transport:

- All goods are supplied ex works. Transport risks shall be borne by the customer. ELIET therefore recommends checking the goods for damage on delivery.
- Any damage found must be detailed on the delivery form before signing. Make sure the driver of the transport company puts his signature next to the details about the damage on your copy.
- In the absence of a written and signed statement on the delivery form, the transport insurance company will not accept any liability.
- Claims for damages must be submitted to the carrier and shall include a copy of the delivery form and a covering letter detailing your complaint.
- The damaged machine should be kept in its original condition until the carrier's insurer has performed an examination.

REGISTRATIONCARD

ELIET CUSTOMER SERVICE

To be able to claim the full rights to which you are entitled, it is important to register within a month after the date of purchase. Therefore, fill out this registration form and return the first registration card to the ELIET Customer Service. Your purchase should be registered on the ELIET website: www.eliel.be

REGISTRATIEKAART

ELIET KLANTDIENST

Om als klant, aanspraak te kunnen maken op waarborg dient men zich binnen de maand na aankoop bij ELIET te registreren. Hiertoe vult u onderstaand document volledig in en stuurt het eerste deel van deze registratiekaart naar de ELIET klantendienst terug. Registreer uw aankoop op de ELIET website: www.eliel.be

CARTE

SERVICE

Pour profiter de tous les avantages auxquels vous êtes éligible, vous devez vous inscrire dans le mois suivant l'achat. Complétez ce document et renvoyez la première partie au Service Clientèle ELIET. Enregistrez votre achat sur le site Internet ELIET: www.eliel.be

ELIET

Registration card
Registratiekaart
Carte d'enregistrement
Registrationskarte

ELIET Customer Service
Zwemmerstraat 136
B-1853 Oostm
Belgium

Customer Identity / Klantgegevens / Données du Client / Kundendaten

Name / Naam / Nom / Name

First Name / Voornaam / Prénoms / Vorname

Street / Straat / Rue / Strasse

Nr / Nr / N° / Nr

Box / Bus / Boîte / App.

City code / Post / Code Postal / Postleitzahl

City / Plaats / Ville / Stadt

Country / Land / Pays / Land

Telephone / Telefoon / Téléphone / Telefon-Nr.

Fax / Fax / Télécopieur / Fax

E-mail

Machine Identity / Machinegegevens / Données de machine / Daten Maschine

Model / Model / Modèle / Modell

Year of manufacture / Bouwjaar / L'année de construction / Baujahr

Article Code / Artikel code / Code d'article / Artikel-Nr.

Serial number / Seriennummer / Numéro de série / Serien-Nr.

Date / Datum / Date / Datum

Signature

Handtekening

Signature

Unterschrift

Stamp of dealer

Stempel van handelaar

Cachet de revendeur

Stempel Fachhändler

I declare that all information that was filled in is correct and truthful. I also declare to have read and understood the operation manual and the warranty conditions. Ik verklaar dat al deze gegevens waarheidsgetrouw werden ingevuld. Hierdoor geef ik te kennen de gebruiksaanwijzing en de garantievoorwaarden te hebben gelezen en begrepen. Je déclare que tous les données complétées sont correctes et véridiques. Je déclare également d'avoir lu et compris les notices de mode d'emploi et les conditions de garantie. Ich erkläre hiermit, dass alle angegebenen Daten korrekt und wahrheitsgemäß gemacht wurden. Ich erkläre ebenso, dass ich die Garantiebedingungen gelesen und verstanden habe.

Put a crossmark to which application this machine was used.
Zet een kruis bij de toepassing waarbij deze machine wordt ingezet.
Indiquez avec une croix l'application dans laquelle la machine a été utilisée.
Kreuzen Sie an, für welche Art von Gebrauch die Maschine bestimmt ist.

- ☐ Home use / Particulier gebruik / Usage particulier / Private Nutzung
☐ Professional Landscaping / Hoveniersbedrijf / Usage Professionnel / Gewerbliche Nutzung
☐ Forestry / Bosbouw / Forêt / Forstbetrieb
☐ Public Grounds / Openbare groenvoorziening / Espaces Verts Public / Öffentliche Grünflächenversorgung
☐ Rental / Verhuur / Location / Vermietung

Dit document dient binnen de maand na aankoop teruggestuurd te worden naar de ELIET Klantendienst.

This document has to be returned to ELIET Customer Service within a month after purchase.

Remettez ce document au Service après-vente ELIET dans le mois suivant à la date d'achat.

Dieses Dokument muss innerhalb eines Monats nach Kaufdatum an den ELIET Kundendienst zurückgeschickt werden.

