

ELIET

MANUAL

DZC550



You will find information about the actual use and maintenance of the machine.
Read it carefully and keep it in a safe place.



Please also keep your **purchasing invoice** or the proof of receipt together with this booklet.



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

© **ELIET**

Copyright 2009 ELIET. All right reserved. All textual material, drawings, figures, diagrams, graphs, etc., included in this ELIET booklet are protected by copyright and also by other intellectual property rights. Nothing from this information may be copied for commercial goals or distributed and/or changed or reposted for other goals. Content has been included at specific places in this ELIET manual of which the copyright is the exclusive property of their respective owners.

1. Introduction



1.1 Read this operating manual carefully

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 OVERSEEDER COMBI DZC 550

Write the identification data of your machine in the text boxes:

Motor:	<input type="text" value="Honda GX270"/>
Stock no.:	<input type="text" value="MA 016 021 207"/>
Serial number:	<input type="text"/>
Year of manufacture:	<input type="text"/>

2 Warranty



2.1 Warranty card

In order to avail of the warranty, please fill out the warranty card and send it to the address below within one month after purchase:

European customers : ELIET EUROPE NV/SA	US customers : ELIET USA Inc. _____
Diesveldstraat 2	3361 Stafford street (office B) - USA
8553 Otegem - Belgium	15204 Pittsburgh (PA) - USA
T (+32)(0)56 77 70 88 - F (+32)(0)56 77 52 13	T 412 367 5185 - F 412 774 1970
www.eli.eu	www.eli.usa.com

Read the warranty conditions on the attached warranty card.

Also register your product online on **www.eli.eu**.

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 motor 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 incorrect operation of the machine.

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

All ELIET equipment and machines are continually being updated and improved and therefore the specification of your machine may differ slightly in terms of shape, technology and accessories. The descriptions and technical data in this manual are accurate at the time of printing. Certain illustrations and descriptions may not be applicable to your specific machine, but instead relate to a different version of the machine. For this reason, discrepancies or deviations in the texts and illustrations in this manual cannot give rise to any claims, as you may well understand. Should you have any questions not fully addressed in this manual, please contact your ELIET dealer.

ELIET AT YOUR SERVICE



ELIET EUROPE NV/SA

GMT + 1 :

opening hours: 8 to 12 and from 13 to 18

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

service@eliet.eu

www.eliet.eu

ELIET USA

GMT - 6

opening hours: 8 AM to 6 PM

T 412 367 5185 - F 412 774 1970

Service@elietmachines.com

www.elietmachines.com

4. Table of contents

1. Introduction	3
1.1 Read this operating manual carefully	3
1.2 Identification data - Eliet overseeder combi DZC 550	3
2. Warranty	3
2.1 Warranty card	3
3. Welcome	4
4. Table of contents	5
5. Safety symbols	6
5.1 For your information	6
5.2 Caution	6
5.3 Warning	6
6. Most important parts	7
6.1 Overall view	7
6.2 Handlebars	9
6.3 Engine	9
7. Safety instructions	11
7.1 Safety messages	11
7.2 Safety features	13
7.3 Safety instructions	15
8. Dealer's duties	22
9. Operating instructions	25
9.1 Preliminary checks	25
9.2 Characteristics of the work area	26
9.3 Preparation of the work area	27
9.4 Preparing the machine	29
9.5 Starting the petrol motor	35
9.6 Working with the machine	38
9.7 Cleaning the machine	46
9.8 Fault diagnosis	47
10. Transporting the machine	22
11. Maintenance	60
11.1 General	60
11.2 Maintenance schedule	61
11.3 Motor maintenance	62
11.4 Machine maintenance	68
12. Storing the machine	95
13. Equipment specifications	96
14. EC declaration of Conformity	97
15. Annexes	98

5. Safety symbols



In the operating manual, a number of symbols are used to provide additional information and warn of any 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 Caution



Caution:

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:

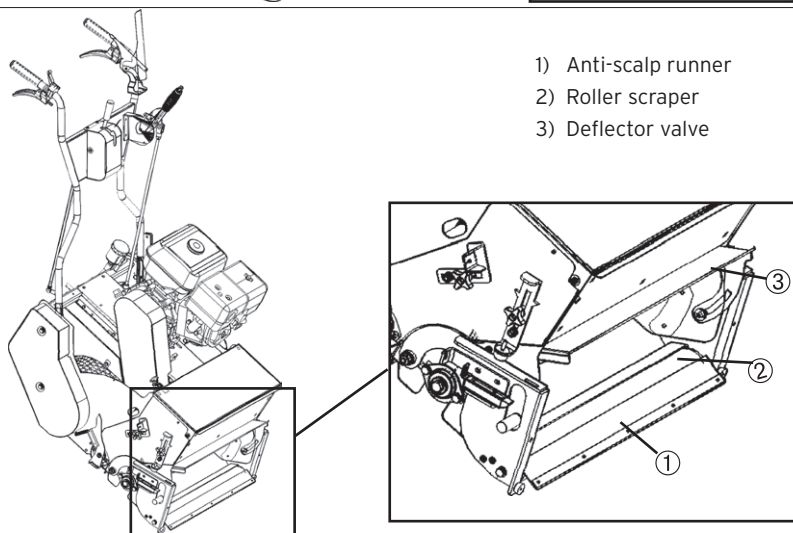
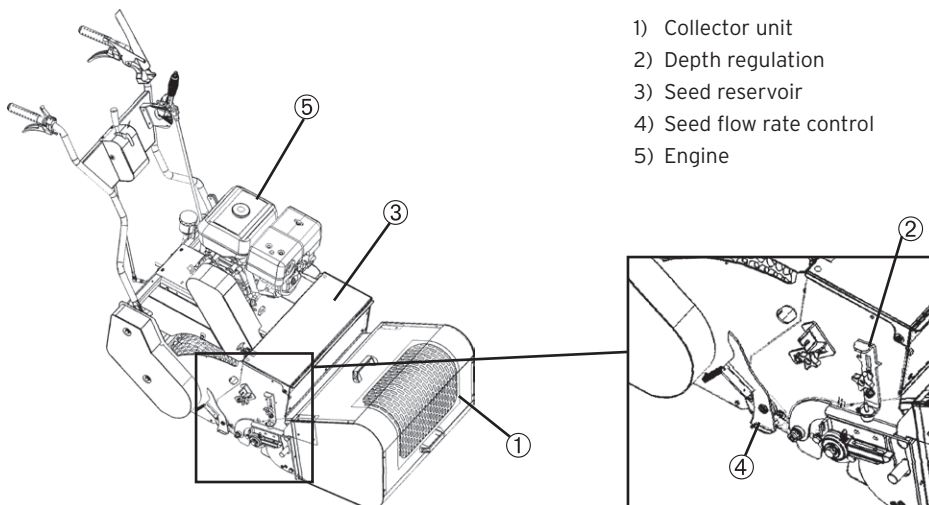
This notice warns you about any **extreme dangers** of which you must be aware in these specific circumstances. So for the sake of your own safety, remain alert at all times.

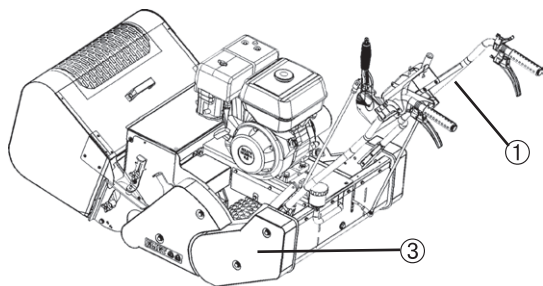
6. Most important parts

To fully understand the content of this operating manual you need to be fully conversant 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 its use for a better understanding of the descriptions provided in this operating manual.

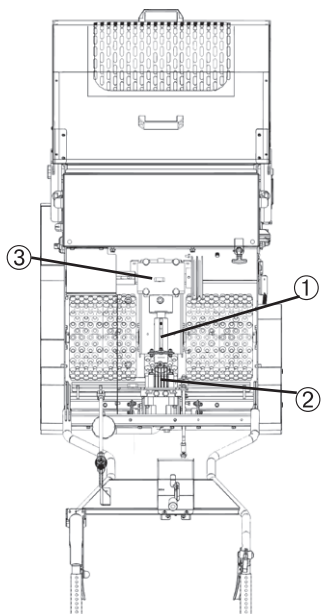
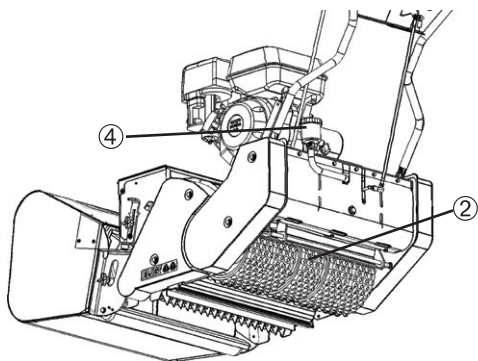
6.1 Overall view

Essential machine parts:

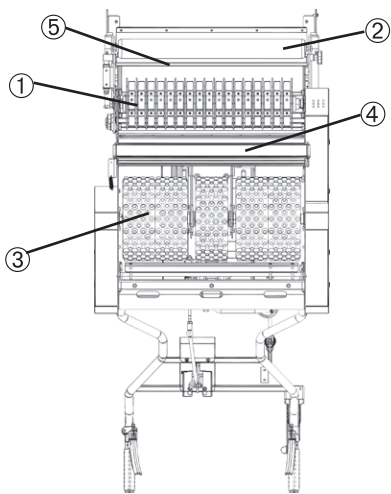




- 1) Handlebars
- 2) Push roller / drive rollers
- 3) Protective transmission covers
- 4) Hydraulic oil tank

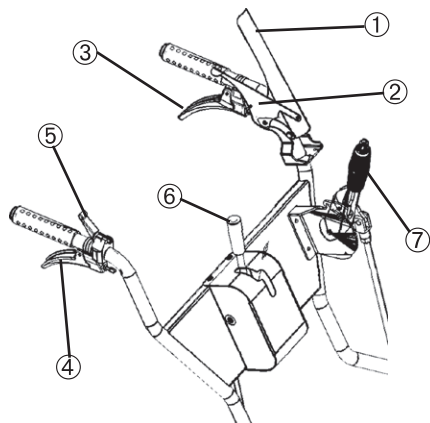


- 1) Camshaft
- 2) Hydrostat
- 3) Reduction gearbox



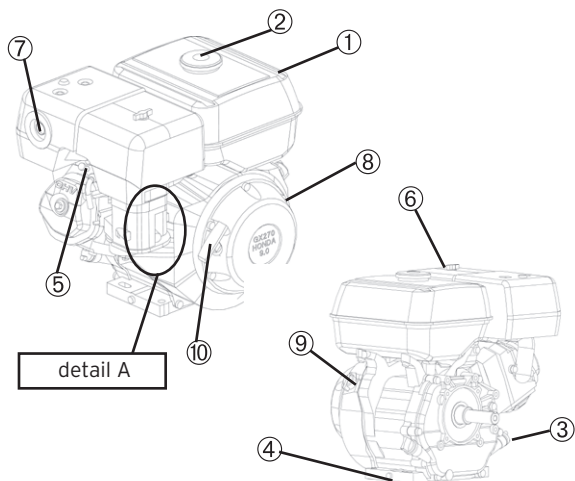
- 1) Blade axis
- 2) Anti-scalp runner
- 3) Roller
- 4) Seed funnels
- 5) Shocks springs (optional)

6.2 Handlebars



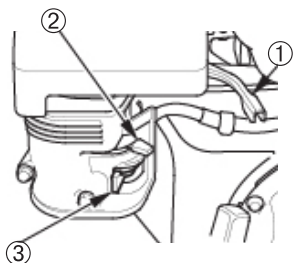
- 1) All-in-one control lever
- 2) Thrust lever
- 3) Operation lever traction left roller
- 4) Operation lever traction right roller
- 5) Transport lever - operating position
- 6) Hydrostatic lever (gear shift)
- 7) Brake

6.2 Engine



- 1) Petrol tank
- 2) Fuel cap
- 3) Oil filler cap (side of the seed reservoir)
- 4) Oil drainage cap (side of the operator)
- 5) Spark plug
- 6) Air filter
- 7) Exhaust
- 8) Ventilation grid
- 9) Contact lock
- 10) Starter cable

Detail A



- 1) Thrust lever
- 2) Choke lever
- 3) Fuel tap



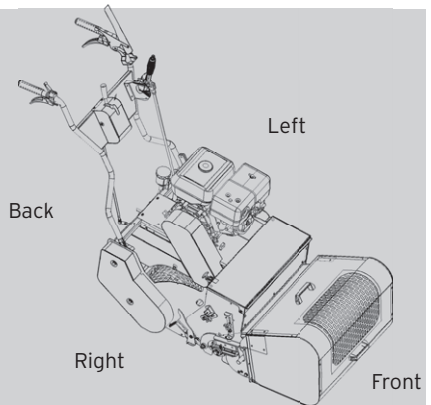
Caution:

There are 2 oil drainage plugs and 2 oil filler caps on the motor. Only the oil drainage plug on the operator side and the oil filler cap on the side of the seed reservoir are used with this machine!



For your information:

If the terms for back, front, left, and right are used, in the manual, then this is always viewed from the perspective of the operator directing the machine.



For your information:

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



For your information:

Chapter 11 contains an overview of the maintenance requirements for this machine and advises you on maintenance requiring the assistance of an authorised dealer.



Caution:

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

7. Safety instructions



7.1 Safety messages:



For your information:

The safety stickers are applied to the machine in clearly visible places. Take notice of the warning messages on these stickers prior to using the machine.



This sticker is glued to the handlebar cover. A central spot on the machine, in remains visible for the operator.

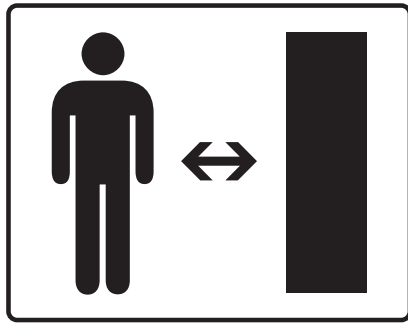
The sticker is made up of three parts:

The first part shows icons that summarise the general safety instructions:

1. Before operating the machine the manual should be read and understood.
2. Suitable safety clothing (safety goggles, gloves, ear protection) must be worn whenever and wherever it is required.
3. Working with or performing maintenance on the machine poses the risk of cuts to the hands. Be attentive and cautious.

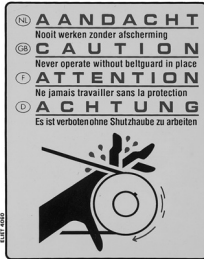


The second part of the sticker reminds the operator that the motor must be turned off and the spark plug cap removed before starting maintenance on the machine.



The third part of the sticker reminds bystanders to observe a 10 m safe distance when approaching the machine.

This sticker has stock no.: BQ 505 010 171



A safety sticker applied behind the large cover of the chain drive warns that no work must be done without the cover in place. Working without the cover poses the immediate risk of clothes or limbs getting caught in the drive and being cut off.

This sticker has stock no.: BQ 505 010 130

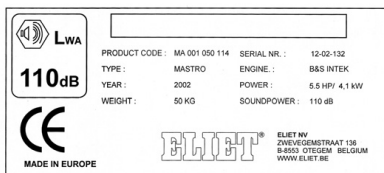


This sticker has been applied to the machine in several places:

- Twice on the curved front plate of the machine.
- Once on the cover of the discharge opening.

The sticker points at the danger of cuts when reaching hands or limbs into the relevant zone.

This sticker has stock no.: BQ 505 010 070



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.

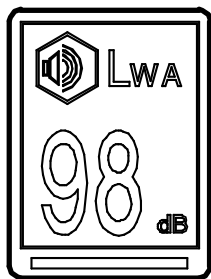
Serial no.

Year of manufacture

Motor

Capacity

Weight



Guaranteed A-weighted sound power Lw(A):
This sticker also includes information on the manufacturer. The CE label confirms that the machine is in compliance with the applicable European machine directive.

This label is applied to the right hand side of the machine body. The figures on it represent the guaranteed sound power levels (LwA) produced by the machine under normal operating circumstances.

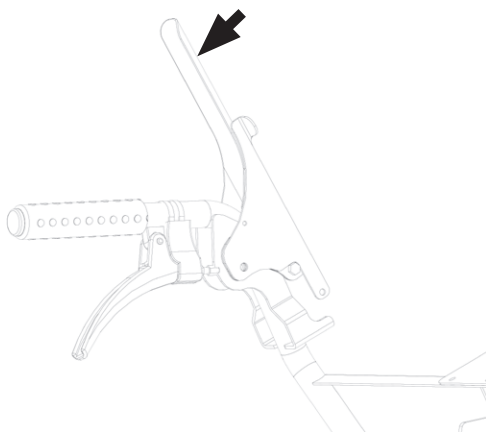
This sticker has stock no.: BQ 505 112 098



Caution:

Safety stickers that as a result of use or cleaning are either damaged, have been removed or become illegible must be replaced immediately. Stickers can be obtained from any authorised ELIET dealer.

7.2 Safety features



De All-in-one™ control lever (AIOC):

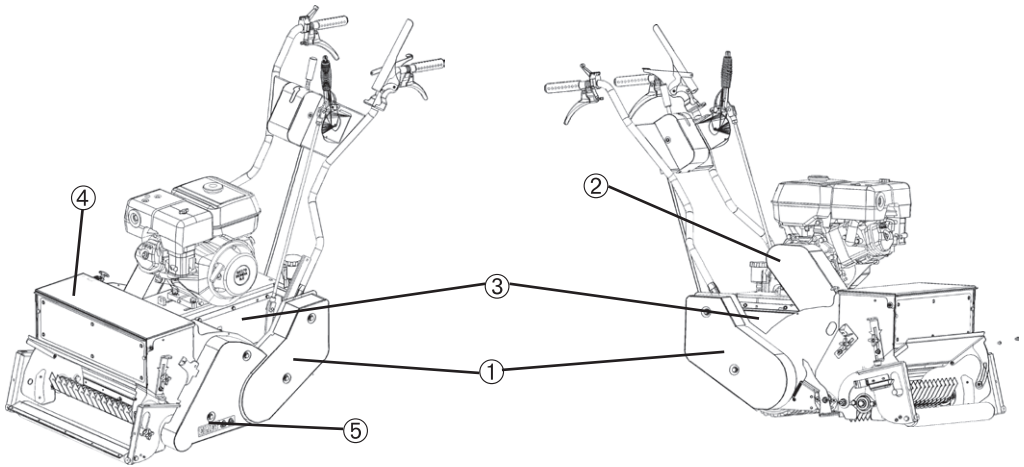
This black lever, mounted on the handlebars, controls practically all of the machine's drives and key functions.

- Activating the blade drive
- Activating the acceleration
- Opening the seed reservoir

Letting go of the lever interrupts all drives and the machine will come to a halt.

Protective coverings:

All moving parts are safely shielded by several protective covers.



1. Protective covers over the transmission gearing of the traction rollers
2. Protective cover on the motor transmission
3. Protective covers for the camshaft and hydrostat
4. Seed reservoir lid: prevents users from accidentally reaching into the rotating drum.
5. Protective cover on rotating drum transmission.

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

Noise reduction: The powerful motor that provides increased torque by means of a built-in reduction gearbox, takes away the need to work at full throttle. It also decreases the noise by a few decibels. Additional interior rubber cladding absorbs the impact on the plate, resulting in reduced noise and protecting the shields at the same time.

7.3 Safety instructions

7.3.1 General safety instructions

- The owner of the machine will keep this manual during its complete service life. A reference guide for the user, it also ensures that the machine is used and maintained correctly at all times. Always refer to this instruction manual if you have any doubts about operations that you are about to perform.
- Always observe the applicable regulations of the Labour Inspectorate to avoid accidents.
- If the instructions stated in this manual are not clear to you, do not hesitate to contact your ELIET dealer for further explanation. The help desk at ELIET NV/SA is at your service to answer all of your questions. (EU +32 56 77 70 88 - USA 412 367 5185). (service@eliet.be)
- Under no conditions whatsoever may the original design of the machine be modified without explicit and written consent of ELIET EUROPE NV/SA.
- Always observe all safety instructions when using this ELIET machine! Carefully read all the instructions relating to the operation of the machine. They are important for your own personal safety.
- Read the chapter meant for the dealer (read § "8. Dealer's duties" on page 22) and immediately verify whether the machine has been delivered in accordance with the instructions.
- Get advice from the dealer or another professional when purchasing the machine.



For your information:

Also read through the safety instructions in the HONDA motor manual. It contains useful tips about proper use and maintenance of the motor.

- Read and observe all safety messages labelled on the machine. (for the sticker location, read § "7.1 Safety messages:" on page 11)

7.3.2 Careful and proper use

- The purpose of this machine is to renovate and rejuvenate an existing lawn. This is done by removing any existing vegetation from the lawn and injecting new grass seed into it. The effect is a considerably higher proportion of young and vital grass, resulting in a better looking lawn with better resistance.
- The machine combines several functions that are executed in one single operation:

A. Preparatory work:

- Carve sowing trenches into the soil. (depth between 0mm and 20mm)
- Collecting the dug up soil, moss, felt etc. and transferring it to the machine's collector unit

B. Sowing seeds:

- Evenly scattering lawn seed.
- Cutting grooves and sowing the seeds with precision
- Recuperation and racking in the lawn seed
- Closing the grooves and tightening the soil around the seed with a back roller



Caution:

This machine is not intended for soil cultivation and must therefore be used only for the above mentioned application.

- 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.
- It is unsafe for persons with heart problems and/or balance disturbances to operate the machine.
- Think about what you are doing at every manoeuvre. Do not be tempted to let routine dull your attention. Never act impulsively or on reflex.
- Although the machine is equipped with extensive safety features, please avoid seeking out any dangers. (read over appendix B1, which contains an indicative list of dangers)



Warning:

Most accidents are caused by carelessness or reckless behaviour.

- The machine may never be used on pastures, only on existing ornamental lawns.
- It will never be used to work on sites that do not comply with the soil characteristics (read § "9.2 Characteristics of the work area" on page 26)
- Only work the machine in a forward travelling direction.
- Never operate the machine on frozen soil.
- Never work when light intensity is below 500 Lux.
- The machine may never be used as a means of transport for people or heavy loads.
- Thoroughly inspect the area where the machine is to be used. Remove roots, stones, sticks,

textile, steel wires and other debris. Also pay attention to leads on the surface (electric cables, water, etc.).

- Avoid lawns that contain stones. Choose the slowest operating speed where necessary and reduce the blade depth. Be alert on large stones - immediately lift the machine into transport mode to pass the obstacle.



Caution:

The machine's work depth is 20 mm at most; each obstacle in the top layer of the soil therefore constitutes a risk of damage or breakage of the blade system.

- ELIET cannot be held liable for damage to property.
- When the blades are operating and the machine has been set to work depth mode, the operator shall work in - practically - straight lines only. With the machine in this position turning is strictly prohibited.
- Avoid inhaling the machine's exhaust fumes. Exhaust fumes contain toxins, which can lead to poisoning and result in death. Consequently, the motor may never run in a closed environment for more than 30 seconds.

7.3.3 Operator's responsibilities

- The operator of this machine is assumed mature enough and with enough common sense to make decisions by himself.
- All persons using the machine are assumed to be fully conversant with the safety instructions. The operator is fully liable for the use of the machine in regard to himself and to third parties.
- The machine may not be operated by underage persons. This does not apply to youths over 16 who are learning to operate the machine under the supervision of an experienced operator.
- Children and animals must be kept outside the machine's danger zone. A minimum distance of 10 meters must be observed.
- ELIET advises against lending the machine to others but, if this should occur, it should only be lent to persons who are familiar with the machine. Always make sure that the user is aware of the potential hazards and ensure that he/she reads the manual before using the machine. (Appendix B1 contains a list of indicative dangers.)
- This machine must only be operated by persons who are well-rested and in a good physical condition. Take a rest if you become tired whilst operating the machine.
- Do not operate the machine after alcohol or hallucinogenic drug use.
- When overseeding on ground that is unfamiliar, you must investigate and notify the person who owns the land of the potential obstacles or foreign objects in the subsoil before undertaking any work.



Warning:

A moment of carelessness or distraction can lead to life long regrets

7.3.4 Personal Protective Equipment (PPE)

- Suitable clothing must be worn when operating this machine, i.e. covering the entire body. The clothing should never be loosely worn. (e.g. a scarf, is out of the question).
- Long hair must be contained using a cap or a headband, or worn in a ponytail.
- Although the risk of personal injury is limited with this ELIET overseeder, the operator's feet are most vulnerable. Sturdy closed shoes with a steel top are highly recommended.
- For protection of the most sensitive senses, ELIET recommends hearing protection.
- Be extra alert when wearing hearing protection: it can impair the ability to hear warning sounds (such as yelling, signal tones, etc.). With this in mind, ELIET strongly advises against hearing protection with a built-in music player.
- As indicated on the safety sticker on the machine, the operator must wear safety gloves and safety goggles in addition to hearing protection.
- Working the soil can cause a large amount of dust, especially under warm and dry weather circumstances. ELIET recommends using a dust mask if your respiratory airways become agitated as a result (masks should comply with the 89/686/EEC standard).



For your information:

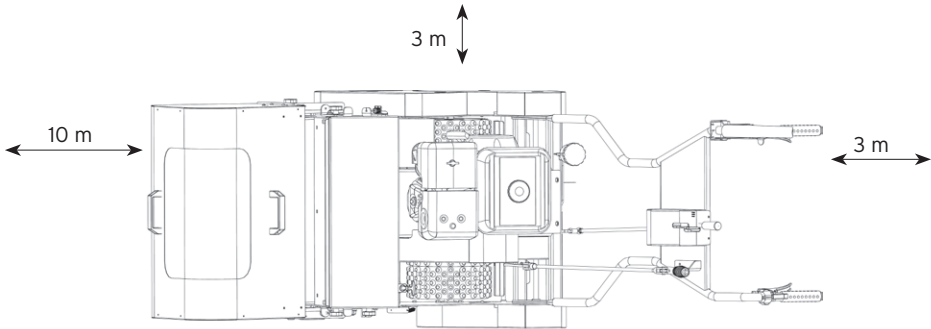
The operator of the machine can reduce the risk of injury by wearing the proper personal protection equipment.

7.3.5 Ergonomics

- Make sure to wear shoes with a proper sole that provide sufficient support.
- Hold the handlebars with both hands.
- Use the wheel traction to steer the machine in the right direction. It is useless to pull or push the handlebar in an attempt to make the machine change direction.
- The DZC 550 weighs over 241 kg; you should therefore never try to lift the machine by the handlebars.
- The seed reservoir can hold approximately 40 L of grass seed. For this reason, choosing seed bags of equally large volume will prevent back problems caused by lifting the bags.

7.3.6 Danger zone

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



- Whilst working, the operator must always operate the machine from the operating post. This area is safe from flying debris, it provides a clear overview of the machine and all necessary operating tools are within reach.
- For the sake of safety, the operator should never allow bystanders within the danger zone, which stretches up to 10 m around the machine during work.
- Children and animals must be kept well away from the machine at all times.
- Do not take risks! When someone comes within the danger zone, immediately stop your activity by releasing the AIOC* decoupling lever. Doing so will switch off the blade drive and accelerator, and the seed reservoir will be closed off.
- When using the machine **without** a collector unit, it is advised to set the deflector cover to the lowest possible setting. This keeps the blades better shielded!
- When working without any collector apparatus, you should be cautious of the fact that the blades can lift objects from the ground and hurl them over great distances. These projectiles can injure third parties or damage property.
- Shut off the motor when leaving the machine unattended. Turn the motor switch to the OFF position
- Once the motor is running, focus all your attention on operating the machine.

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.

- Periodic maintenance is essential. Strictly follow the maintenance schedule included in this operating manual (see “11.2 Onderhoudschema” on page 61).
- The maintenance meter helps you keep track of the number of work hours (read appendix B4 on the functioning of the maintenance meter).
- The maintenance meter can be a critical tool and resource for keeping track of the exact number of work hours. For this, consult your authorised ELIET dealer.
- Inspect the machine prior to every job. (Read § 9.1 and §11.4.1). Any defects must be repaired immediately.
- Always ensure the motor is switched off before performing repairs or maintenance. Always wait until the blades have come to a full stop before performing any action whatsoever.
- If parts must be replaced as a result of wear or failure, you must always turn to your authorised ELIET dealer for original replacement parts. This is of key importance for your own safety.



Warning:

Repairs, maintenance and cleaning must only be performed with the motor disengaged and the spark plug cap decoupled.

7.3.8 Limits of the machine

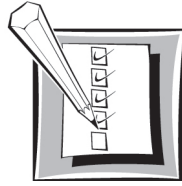
- ELIET recommends a maximum work depth of 20 mm. In view of your own safety and a long life span of your machine, increasing the work depth is not recommended.
- The DZC 550 should not be used at low temperatures or when there is frost forming.
- The machine weighs 241(*) kg. Please take this into account when transporting the machine.
- The minimum passage width is: 750 mm
- The tread width of the rollers is: 550 mm
- Maximum ground clearance in transport mode is: 40 mm
- Minimum turning zone: R: 1,440 mm
- Time required to switch from transport mode to operation mode: 3 seconds
- Maximum forward speed : between 0 and 4 km/h or 1.1 m/s.
- Maximum speed in reverse: between 0 and 4 km/h or 1.1 m/s.
- Average operational speed is between 0 and 3 km/h or 0.83 m/s.
- Weight (without collector unit) on the front axle: 17 kg ; weight on the rear axle: 200 kg
- The machine's maximum ground pressure is 0.6 kg/cm². Always verify that the surface has sufficient bearing power.
- Average consumption: 3.8 to 4 L/hour

(*) = weight of the machine with an empty seed reservoir and empty collector unit

7.3.9 In harmony with nature

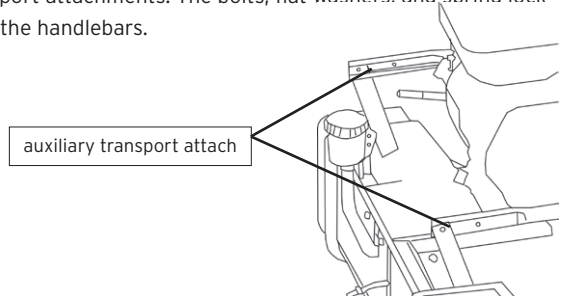
- Use the machine in a manner that respects environmental regulations:
 - a) Avoid running the machine without actively using it.
 - b) Avoid spilling petrol whilst refuelling.
 - c) Oil leaks in the motor or transmission should be repaired immediately.
 - d) Service the motor regularly for optimum combustion.
 - e) 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 environment-friendly processing.

8. Dealer's duties

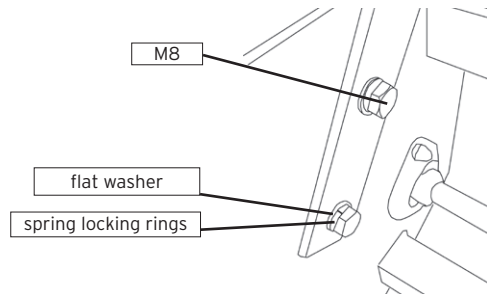


Each ELIET overseeder combi that leaves the factory has been subjected to a test run and checked for all functionalities. The machine is then packed for transport.

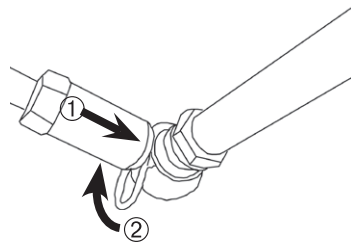
- The dealer unpacking the machine will check it for any damage occurred during transport.
 - o Removing the two auxiliary transport attachments. The bolts, flat washers, and spring locking rings are used next to mount the handlebars.



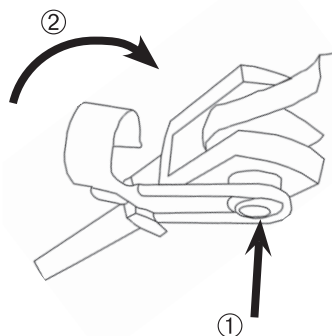
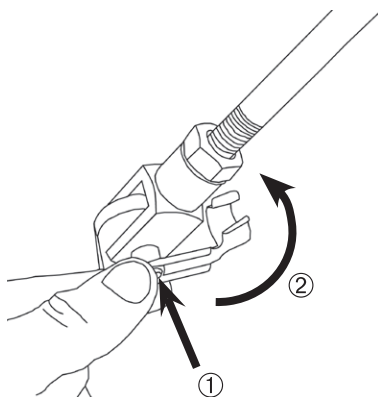
- o Two bolt connectors (M8, spanner size 13) are used on each side of the frame to attach the handlebars.



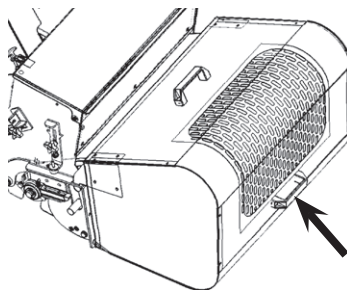
- o Mounting the rod of the hydrostat lever. Secure the ball joint.



- o Mounting the brake with the rod. Secure the hinge pins.



- Mount the collector unit's handle.
 - o 2 inner hex bolts M8x20, Allen key 6
 - o 2 Washers Ø8x30
 - o 2 Nuts M8, spanner size 13



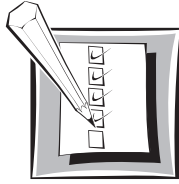
- The machine will be filled up with petrol (Read §9.4.2)
- Prior to delivery to the customer, the dealer will check the oil level in the motor and the hydrostat. (Read § "11.3.3 on page 64, read § 11.4.11 Checking hydrostat levels).
- The dealer checks that the RPM setting is at the correct level of 3,200 RPM.
- The dealer will check that the traction on both rollers is identical upon pressing both traction levers. The machine must advance in a straight line. (Read § 9.8.9 for the adjustment procedure)

- The dealer leaves the machine to run for a few minutes and checks that all devices function properly.
- The dealer will set the correct depth in advance (read § 9.4.1.2 Setting the work depth)
- He will then mount the collector unit onto the machine.

- Every ELIET dealer warrants a long life span of ELIET machines. He will lubricate all grease nipples before delivering the machine to the client. (Read § 11.4.2 General Lubrication treatment)

- Important information for the new owner at the time of delivery:
 - a) The dealer familiarizes the new owner with the machine's operation.
 - b) The dealer informs the new owner of potential dangers.
 - c) The dealer insists that the machine be returned for first maintenance after 10 hours of operation.
 - d) The dealer indicates the points that require regular lubrication.
 - e) The dealer ensures that the warranty card is filled out and signed. This is a precondition for any warranty claim. Please read the attached warranty conditions for more details.
 - f) Since the customer would be able to make a claim under warranty, the customer shall register the purchase on the ELIET website: **www.elieta.eu**.

9. Operating instructions



9.1 Preliminary checks



Caution:

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

Check-list

- A. Perform a visual inspection of the condition of the machine (read § 11.4.1 Visual inspection)
- B. Check whether there is enough oil in the machine. Pull out the dipstick and check whether the oil level is below the minimum.
(If necessary, read § 11.3.3 Checking the motor's oil level).
- C. Check the hydrostatic oil level. (If necessary, read § 11.4.11 Checking the hydrostat).
- D. Check that the fuel tank is full. (tank volume 3 litres). If not, the machine must be refuelled (Read § 9.4.1.4 Refuelling).
- E. Check that the air filter is not heavily soiled (if necessary, read § 11.3.1 Cleaning the air filter).
- F. Check that all safety provisions on the machine are still operating properly.
(See § "7.2 Safety features" on page 13).

After verification and approval of all points on the check-list, the work area can be prepared (Read § on page 27) and you can proceed to the working area with the machine.

9.2 Characteristics of the work area

So as to avoid damaging the machine and to guarantee a quality result in your efforts, it is advised to operate the machine only on amicable terrain.

- The machine will only be used on an ornamental lawn. An ornamental lawn is understood to be soil covered with grass, possibly containing some low-growing weeds (moss, clover, dandelion, daisy, etc.), and that is mowed regularly (once or twice a week).
- The grass must have been cut to a length of 20 mm at most.
- Meadows are excluded from the machine's work area.
- The bottom of the ornamental lawn is flat and does not contain bumps bigger than 20 mm.
- Preferably, the soil does not contain any stones above a depth of 30 mm.
- Check whether there are any foreign objects on the lawn. (stones, rope, electrical cables, steel wire, branches, etc.). Remove any of these objects before operating the machine.
- The soil of the lawn may not be frozen.
- Working a dried out soil under the lawn is useless and had better be avoided.
- Work on a terrain that is wet and soggy after heavy rainfall must be postponed.
- The work speed must be adjusted to hardness and type of soil.
- The maximum allowed (forward) slope gradient is 15°.
- For overseeding purposes, the lateral slope gradient may not exceed 10°.
- Beware that turning the machine requires a minimum surface of 4m² (2 x 2 m). Consequently, it is pointless to use the machine on small surfaces.



Caution:

Do not operate the machine on frozen or dried soil.



For your information:

The rollers are somewhat profiled in order to prevent grass and dirt from sticking to it. Should the rollers soil too quickly nonetheless, this implies that the terrain is too wet and the work will consequently have to be postponed.

If the terrain does not meet the above mentioned requirements, preparatory activities should be carried out first (read § "9.3 Preparation of the work area" on page 27).

9.3 Preparation of the work area

Overseeding is a cheap and effective way of rejuvenating your lawn. The DZC 550 is a precision overseeder that can bring the seed in optimum growth circumstances under a minimum loss of seed. Some preparation of the terrain is required in order to guarantee an optimum result and enhance growth possibility.

Efficient restoration of the lawn requires the following preparations:

- A. Preparing the terrain
- B. Examine the state of the grass and the soil.
- C. Choice of seed mix, depending on the soil, the use of the lawn and the climate.
- D. Determining the treatment after overseeding to enhance germination.

A. Preparing the terrain :

- As indicated in § “9.2 Eigenschappen van het werkerrein” on page 26 the terrain must be free from 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.)
- If certain obstacles cannot be removed, then they should be visibly marked (tree roots, water drain covers, gas lines, sprinkler systems, power outlets, lawn lighting).
- Also pay attention to any low voltage wires marking the terrain of robotic lawn mowers, electric dog fencing, etc.
- Large stones in the ground must be removed to avoid damage to the blades.
- If the lawn is very uneven in places (height differences in excess of 20 mm), it is recommended to roll the lawn several times, preferably following rainy weather. Fill any deep pits with soil. (Lawn aeration (to approx. 60 mm) can be required after overseeding to prevent the upper soil layer from suffocating.)



For your information:

The operable terrain must be checked prior to operation in order to detect any possible problems in advance. (Read § 9.6.2 Planning and determining the track and the work pattern.).

B. Examine the state of the grass.

Look at the current vegetation of your lawn: Is there a lot of moss or other weeds growing? What is the grass proportion in the lawn? Does it contain several grass varieties? Are there dense grass patches, or just a few worn grass stalks? ...

If the ratio of moss to grass is $\frac{3}{4}$ to $\frac{1}{4}$ per m^2 , do the following:

- Treat the lawn two weeks in advance, preferably before rainfall, with anti-moss spray or a herbicide against broad-leaved weeds.
- Once moss and weeds have died and turned brown and dry, rake them off the lawn (preferably with a dethatching machine).
- Clean the lawn from the raked debris.
- Just before overseeding, cut the grass to a length of 2 cm at most.

If the proportion of grass to weeds or bare spots per m^2 is approximately $\frac{3}{4}$, proceed as follows:

- Just before overseeding, cut the grass to a length of 2 cm at most.

If pro-active overseeding is the objective (e.g. on a healthy lawn that is rusty after prolonged drought), or when the remainder of mulch has produced a felt layer on the lawn; or if the lawn comprises a mono grass type culture with low resistance, do the following:

- Thoroughly dethatch the existing lawn and clean up the dry and old grass.
- Mow the lawn using the shortest mow setting so that the height of the grass is 2 cm at most.

Once these preparations have been made, overseeding may start. It is recommended to choose the sowing moment prior to a rainy period.²⁵

C. **Choice of seed mix, depending on the soil, the use of the lawn and the climate.**

In order to achieve a good result in your overseeding treatment, it is essential that the correct grass mixture be chosen that suits the properties of the soil and the climate.

Ask your seed specialist for advice.

D. **Determining the treatment after overseeding to enhance germination.**

After overseeding, it is best to use a top-dresser with compost across the lawn in order to cover up grooves. Compost is also a perfect organic fertiliser that encourages germination of your grass.

If you carried out overseeding during a wet period and the rain stopped just before you started sowing, you must continue to irrigate the lawn copiously for at least 20 days.

If the overseeding was carried out during a dry period, you must provide the lawn with no extra water.

For perfect grass, the lawn must be regularly aerated in order to improve root growth. Grass must also be re-sown every one or two years.

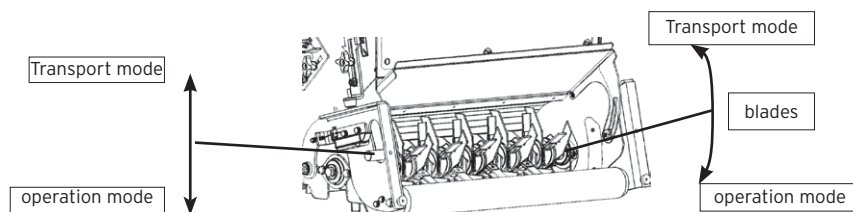
9.4 Preparing the machine

9.4.1 Machine set-up

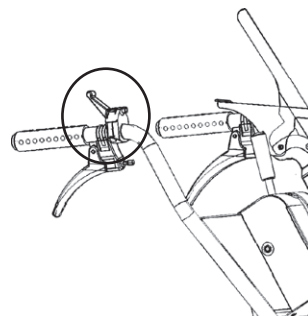
Transport mode - Operation mode

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 ground soil.

Operation mode: the state of the machine where the blades are set to the work depth (blades cut into the topsoil).



Using the small lever on the right side of the steering, the transport safety lock can be switched off, in which case the machine can be shifted from transport to operation mode.



Setting the work depth

For fast germination of the grass seed and stimulation of quick development of the root structure, the seeds are planted ideally at a depth of 5 mm.

Since the seeds never drop entirely into the full depth of the groove, we cut the groove somewhat deeper than the target sowing depth. The standard depth setting varies between 15 and 20 mm.

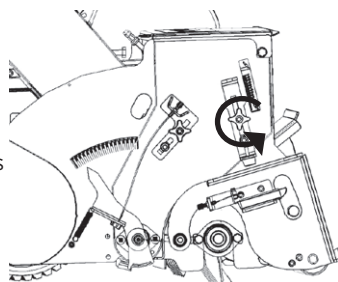


Caution:

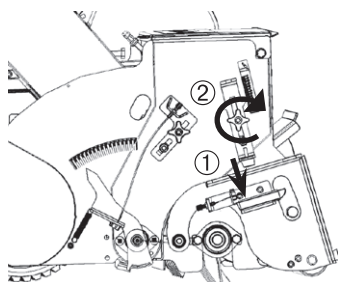
For this setting, one should always wear gloves.

How to set the depth:

- Place the machine on an even, paved surface (e.g. concrete or asphalt, etc.).
- Turn off the motor.
- Remove the collector unit.
- Loosen the star knobs of the depth regulation on both sides of the machine by a complete rotation.
- Let the machine lower down to the operation setting by pressing the small, black lever "Transport mode" until the blades touch the ground.



- Rotate the blades manually such that the tip of the blade rests on the ground. (=zero point)
- Take a 20 mm thickness plate and scoot this under the anti-scalp wheel
- Also, check once again whether the tips of the blades are resting on the ground.
- Now scoot the alignment profiles up against the body of the anti-scalp wheel and turn the star knob on both sides of the machine until tight.



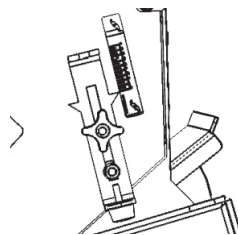
- This setting corresponds to a work depth between 15 and 20 mm.
- In this position, where the anti-scalp wheel rests upon the thickness plate, the blades must just touch the ground if these are manually turned around.
- Remove the thickness plate from under the machine.
- Reset the machine to transport mode and remount the collection unit.

To check the actual depth it is recommended to run a test prior to starting the overseeding work.

- Place the machine on a part of the lawn where the ground is level.
- Start the machine's motor (read § 9.5)
- Operate the AIOC lever and let the machine drop down to operating mode.
- Push the machine forward 1m (read § 9.6.1 Operating the machine)
- Return the machine to transport mode, and now drive the machine back 1 meter so that the grooves under the machine come into view.
- Measure the depth of the grooves at various places and compare the measurements to the desired work depth.
- Adjust as needed.

Note:

- Due to wear and tear on the blades, it is advised to check and adjust the work depth regularly (if necessary) before beginning operation.
- On a new machine, the zero point matches up with the “J” on the scale.
- 1 gradation on the scale corresponds to a shift in depth of approximately 5mm.



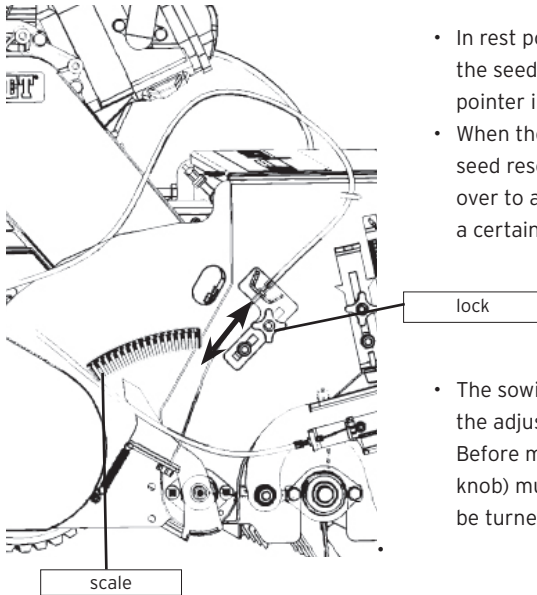
Setting the sowing rate

1. The motor must be turned off prior to refilling the seed reservoir.
2. Four things must be checked before refilling the seed reservoir:
 - o Verify that the scatter openings under the seed reservoir are not blocked and free of condensation. Moisture would cause the seed to stick, resulting in blockage of the seed openings.
 - o Check whether the mouth of the seed reservoir closes properly when the machine is in transport mode. This is to prevent grass from being seeded when you do not want it to be whilst the machine is being transported.
 - o Also check the felt strip for any moisture build-up. When this is the case, it is possible that the seed reservoir will no longer close properly.
 - o Check the sides of the seed reservoir for condensation.
3. The seed must be sieved when refilling the seed reservoir to remove any foreign objects (small stones, sticks, grass clippings) that could otherwise prevent proper closing of the seed openings.

Always fill the reservoir to a sufficient level to ensure constant and consistent scattering.

Before scattering seed, you must set the desired sowing volume on the seed reservoir. The number of kg of seed per 100m² chosen will depend on the instructions of the seed supplier, the type of seed and the sower's experience.

Setting the sowing volume



- In rest position, the tension spring will close off the seed reservoir completely. In this position, the pointer indicates a "1" on the scale.
- When the AOIC lever is completely pushed in, the seed reservoir will open and the pointer will shift over to a certain value. This shift corresponds to a certain sowing rate.

- The sowing rate can be adjusted by moving the adjustable opening upwards or downwards. Before moving the opening, the safety lock (star knob) must be loosened. Once set, the safety can be turned on again.

- Appendix B2 contains a diagram showing the seed flow rate of a standard seed mix in function of the seed reservoir openings (1-15).
- For most standard seed mixes, the ideal setting will be somewhere between 6 and 7.
- This is a rule of thumb for setting the seed flow rate. Since the flow of seed mixes largely depends on the seed size, deviations from the curve presented in the diagram must always be anticipated.
- To determine the exact weight of the seed, proceed as follows. Optional, you can obtain a seed collection reservoir (order number: MA 01 001 013) which can be attached under the scatter zone of the seed openings. Make a test ride of 10 metres, then weigh the seed that was caught in the collecting unit and multiply that figure by 20. The outcome is the flow rate per 100 m².



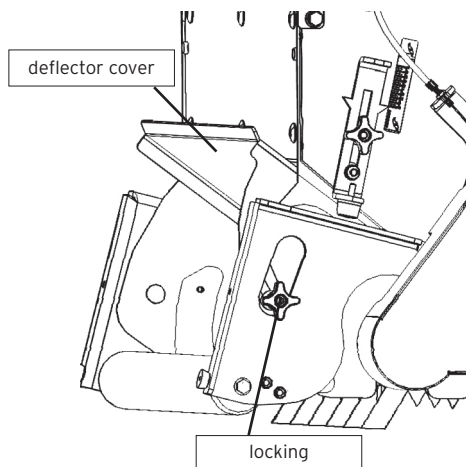
Caution:

If seed was already in the seed reservoir and the machine was transported over a great distance to reach the work zone, the seed flow over the first ten metres will not entirely match the set flow rate. The rotating drum in the seed reservoir turns along with the movement of the machine when transporting (so, when the seed reservoir is closed). This disturbs the seed composition, which affects how the mass of seed flows in the firsts few metres after opening the seed reservoir.

Therefore, it is recommended not to base the setting of the seed flow rate on the flow rate results of these first metres.

- It is recommended to ensure that the seed reservoir is adequately filled when overseeding on a slope in the lengthwise direction. This serves to avoid that the seed shifts to one side of the reservoir and consequently is not scattered over the full width of the surface.

Setting the deflector cover



The corner of the deflector cover can be set by first unlocking the star knob and positioning the cover in the desired place. When this is set correctly, the cover is locked back into place.



Caution:

When using the machine without a collector unit, it is advised to set the deflector cover to the lowest possible setting. This keeps the blades better shielded!



Caution:

When working without any collector apparatus, you should be cautious of the fact that the blades can lift objects from the ground and hurl them over great distances. These projectiles can injure third parties or damage property.

9.4.1 Refuelling

When petrol in the machine is running low, it must be refuelled. The use of fresh petrol is recommended at all times. Use unleaded petrol, preferably with an octane index of 98 or 99.



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. Consequently, the following points should be observed:

- Never add petrol whilst the motor is running. Always allow the motor to cool off for several minutes prior to fuelling.
- Only use fresh petrol. ELIET is environmentally conscious and, therefore, recommends using unleaded petrol. To preserve fuel freshness for longer periods of time, additives may be used.
- 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 from the selected work area. Doing so will avoid creating a fire hazard.
- The white fuel tank with a total content of 5.3 litres sits on top of the motor.
- Clean off the area around the cap of the fuel tank and remove it.
- Take note that a fuel filter can be inserted into the opening of the tank. Refrain from pouring too quickly; allow the petrol sufficient time to penetrate the filter without overflowing.
- If there is no tank sieve present, then select a hopper with a filter that can be used to keep unwanted rubbish from getting into the tank.
- Do not fill the tank completely. Fill up to approximately 10 millimetres from the brim. So never fill it up to the brim.
- Considering petrol's flammability, keep in mind that the hot exhaust is right next to the tank.
- Put the cap back on the fuel tank as quickly as possible. If any petrol is spilled whilst refilling, then the motor 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, thus, strictly forbidden to refill the tank in the vicinity of smokers or near an open fire.
- If fuel is swallowed or comes in contact with the eyes, consult a doctor immediately.

9.5 9.5 Starting the petrol motor



For your information:

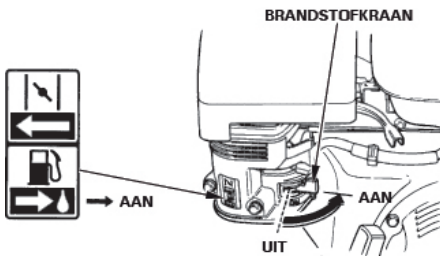
Please also read your motor manual for more information. The 'General' chapter in the manual identifies the key motor functions in § 6.



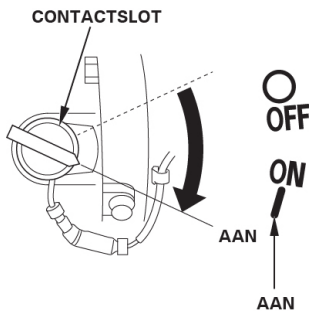
Caution:

Never start the machine when dust has settled on the motor or between its cooling fins. It reduces proper cooling of the motor and can cause a fire. Furthermore, sand and ground dust can block the motion of any external machine parts.

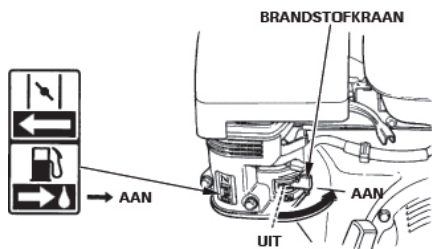
- If this has not been done when going through the check-list, the motor must be checked for adequate oil (*read § 11.3.2 Checking the motor's oil level*) and fuel levels (*read § 9.4 Refuelling*) before starting it.
- Also check that the air filter is clean (*read § 11.3.1 Cleaning the air filter*) and that the grid covering the opening for suctioning in cooling air is unblocked.
- Prior to starting the machine, ensure that it is in transport mode and check that the transport lock is engaged.



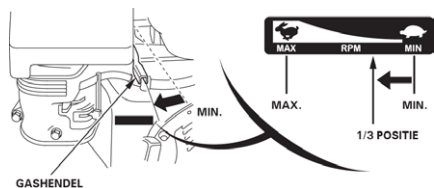
- Open the fuel tap by turning the knob to the ON position. The looking glass under the fuel tap should become filled with petrol.



- Switch the general On/Off switch to ON.



- Close the "CHOKE" by pulling the small lever backwards.



- Put the thrust lever to full thrust (move it to the far left).



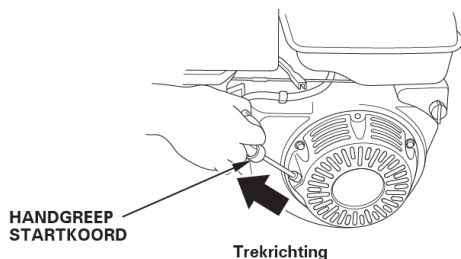
Caution:

For optimum protection of your hearing it is recommended to put on hearing protection prior to starting the motor.



Warning:

Under no circumstances should you ever allow the motor to run for an extended period (that is, more 30 seconds) in a closed space. The exhaust fumes contain toxins that may cause poisoning or suffocation.



- Operate the starter. Tug a bit on the starter handle until you feel resistance, and then pull briskly and firmly in the direction of the arrow shown here. Allow the starter chord to recoil back. Repeat this until the motor is running on its own.



Warning:

Do not let the starter handle slam up against the motor. Allow the starter chord to recoil slowly so as to prevent causing damage to the starter.

- Several idle efforts to start the motor may point to a wet spark plug. In that case the spark plug must be cleaned or replaced (see § 11.3.5 Check or replace spark plugs).
- Once the motor is running, push back the handle; the CHOKE will open again. This prevents the motor from getting too much fuel. If the choke is not reopened, the motor will slow down and start to smoke heavily, and eventually come to a stop. Restart the motor without opening the CHOKE if this happens.



Warning:

The machine becomes a source of danger when the motor is running. A wrong action can put the machine in motion. In a situation that could lead to loss of control over the operation the motor must be switched off immediately.

Ways to quickly stop the machine:

- When in operation, release the All-in-one™ lever, which disengages all driving forces immediately.
- By turning the general on/off switch to the OFF position, the motor will stop running and, of course, there will be no more driving force.

9.6 Working with the machine

9.6.1 Driving the machine



Warning:

Never let the motor run in a closed space in view of the risk of carbon monoxide poisoning from the exhaust.

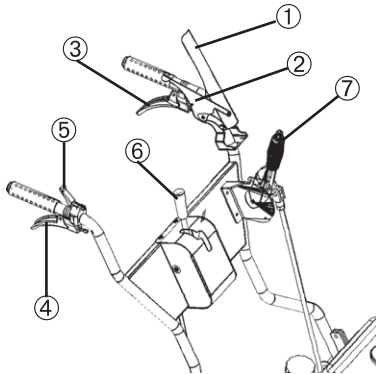
If the machine is stored inside, doors and windows will be opened for maximum ventilation before starting the motor to move the machine.

9.6.1.1 Driving

The DZC 550 is equipped with 1 anti-scalp roller wheel and 3 roller wheels. The 2 outermost wheels are hydrostatically powered.

By pushing in both operator handles at the same time, the traction wheels will propel the machine forward in a straight line.

In order to stop the machine, you release both handles.



1. All-in-one control handle
2. Thrust lever
3. Operating lever traction left hand roller
4. Operating lever traction right hand roller
5. Transport-operation switch
6. Hydrostatic lever (gear shift)
7. Brake

The machine can be relocated in work mode or in transport mode.

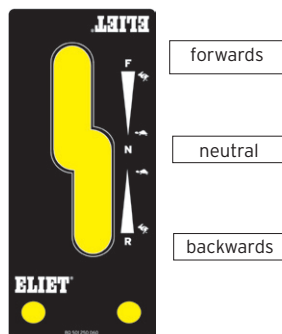
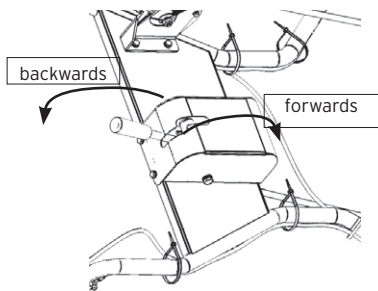
A. A. When in transport mode, the blades will be lifted to maximum height and the machine will consequently lean on its front, on the anti-scalp roller wheel.

The function of the anti-scalp roller wheel is twofold. On the one hand, this wheel is used for setting the work depth. On the other hand, they keep the machine at a constant work depth and makes up for unevenness of ground. The patches with the slightest bit of unevenness are flattened out by the wheel, in which case the path of the blade cuts are evened up. Lastly, the wheel keeps the machine on a tight path, which adds to the operational agility of the machine.

B. In operating mode, the blades are set to their work depth. Because in this mode the 18 blades are cutting through the top layer of the lawn, sudden changes of direction which could result in cutting away parts of the lawn must be avoided.

Driving speed - forward - neutral - reverse

The gear shift is a black lever located at the centre of the steering panel. Using this stick shift, you can operate the machine in both a forwards and backwards direction, and seamlessly change speed.



forwards

neutral

backwards

Note:

The overseeder combi only becomes operational when:

- the gear shift is in forward (or reverse)

AND

- one or both operating handles of the traction wheels is/are lifted.



Caution:

Speed will usually be higher in transport mode, which will require quicker adjustment of that speed to circumstances and obstacles on the path of transportation.



Caution:

When starting in forward motion, it is suggested to push in the operating handles of the traction wheels slowly and lightly lifting forward the steering bar. Starting up the machine to quickly can cause the machine to tilt backwards.



Caution:

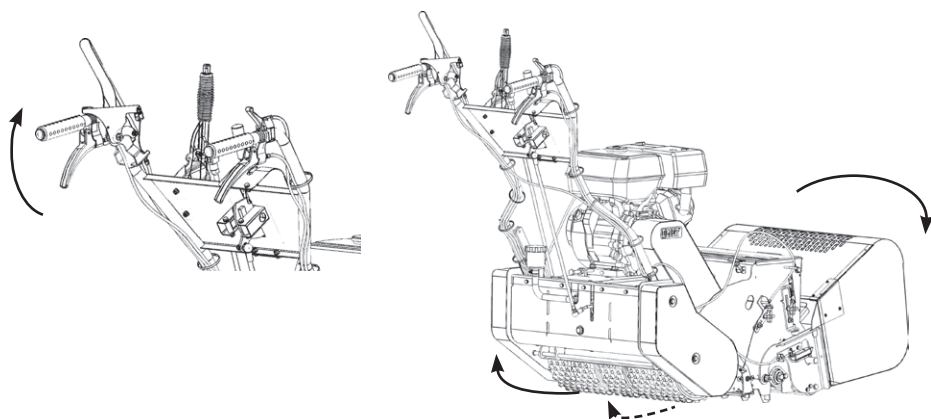
In work mode, the forward speed will usually be lower, and it is as not preferred to make a quick change of direction.

9.6.1.2 Making turns

Taking a curve with the DZC 550 requires the creation of different traction between the two rollers. This is easily realised by putting different pressure on the traction levers on the handlebar. By deactivating the roller on the inside curve and maintaining traction on the roller on the outside curve, the overseeder turns as if automatically.

If you want **to turn left**, the speed of the right hand roller must exceed that of the left hand roller, hence the right hand lever must be squeezed more tightly.

If you want **to turn right**, the left hand roller will have to rotate faster than its counterpart. More squeeze on the left lever will have the desired effect.



9.6.1.3 Turning 180°

If you reach the end of a strip and want to turn around to overseed the adjoining strip, the machine will have to turn 180 degrees on a limited work area.

During transport it may also be necessary to round a corner or take a short turn. Due to its highly balanced weight the machine's front can be lifted easily via the handlebar, allowing the machine to turn practically on the spot. This option makes the DZC 550 a versatile machine even for smaller and complex gardens.

In operating mode: when reaching the end of a work unit, you proceed as follows:

- a. Cease forward motion by releasing both operating handles of the traction wheels,
- b. Release the All-in-one control handle.
- c. Put the machine in transport mode,
- d. Lift up the machine in the front somewhat by pushing down on the steering rack,
- e. Manually turn the machine around 180° or using the operating handles. By fully squeezing only

one of the handles, the machine will take a short turn with the centre of the turning circle lying at the outer edge of the stationary roller.

In transport mode:

- a. Cease forward motion by releasing both operating handles of the traction wheels,
- b. Lift up the machine in the front somewhat by pushing down on the steering rack,
- c. Manually turn the machine around 180° or using the operating handles. By fully squeezing only one of the handles, the machine will take a short turn with the centre of the turning circle lying at the outer edge of the stationary roller.

9.6.1.4 Avoiding slippage

The steel rollers are covered with a layer of rubber, which ensures enhanced riding comfort and noise reduction when the machine rides on a paved track. Because the rubber has hardly any profile, the rollers have limited grip force.

A humid surface or a wet lawn increases the risk of slippage which can cause damage to the lawn. This can be avoided as follows:

A. Starting

The DZC 550 weighs at least 241 kg. The grip force of the rollers on the surface must overcome this resistance to put the machine into motion from a still position.

Well-dosed activation of the traction on both rollers is of key importance in this process. Once the mass is in motion, the inertia helps to reduce the roller resistance which in turn decreases the risk of slippage.

For overseeding activities on a humid surface, it is recommended to bring the machine into motion before lowering the blades to work depth. After all: the blades tucking into the soil as well as the anti-scalping roller increase roller resistance which at the start inevitably causes the rollers to slip.

B. Turning 180°

Since traction mainly comes from one roller when the machine turns, this can induce slippage on a humid surface (limited grip force combined with extra resistance from turning and starting). The best method to turn the machine is to briefly continue in a straight line with well-dosed traction on both rollers, and then gradually slowing down the inner roller until it stops whilst simultaneously increasing the traction speed on the outer roller; this procedure will make the machine turn in one smooth movement.

Friction around the inner roller can be avoided by rotating the inner roller backwards in balance with the turning movement.

9.6.1.5 Traversing a slanted slope

Frequently, people end up on a lawns that are slanted or slightly sloped. When overseeding on a slope, the machine will be inclined to bear off towards the valley. If using cruise control under these circumstances, the slope angle must be compensated by putting extra traction on the roller on the valley side.



Caution:

Whilst traversing a slope, the motor may suddenly shut off. This has to do with the motor's oil safety (Read § 9.8.2 Motor shuts off during operation).

9.6.1.6 General remarks



Caution:

Speed must be reduced whilst headed to the work area. The higher the speed, the quicker the reaction required when running into obstacles and the greater the inertia forces that need to be controlled.



Warning:

Obstacles in the surface may cause a difference in the force of the grip which may provoke a sudden unintentional turning motion. Be alert.

- Choosing an obstacle-free access route towards the terrain will considerably reduce the risk of damage to the surface.
- Avoid riding the machine across unstable or soggy surfaces. If the rollers slip and the 241 kg weighing machine digs itself in, it will be hard to release it. Be mindful of a surface pressure of 0.6 kg/cm².
- If you ever start losing control over the machine, immediately release grip on the handlebars so that all operating levers revert back to neutral and all driving forces are disengaged.
- ELIET cannot be held liable for damage to property.
- If the machine consistently bears off to one direction when using cruise control, the settings must be adjusted (Read § 11.4.9 Adjusting wheel traction).
- Should the machine be transported in or out of a commercial van: (Read § 10 Transporting the machine)



For your information:

Machine breakage or defects resulting from incompetent operation are not covered under warranty.

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:
 - o Layout of the terrain. One can work faster in long stretches with fewer turns.
 - o The profile of the terrain. Slight slopes can best be worked by traversing the slope lengthwise. For steeper slopes, the best work method is to drive up and down the slope.
 - o What obstacles must be taken into account? The angle for approaching obstacles depends on where it is easiest to make a turn.
 - o 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.
 - o If the work is done under windy conditions, the route will be arranged such that the dust produced during the operation will be blown away from the machine.

The DZC 550 sets itself apart from other overseeders in that it picks up debris that has been cut away and gathers it up into a large, voluminous (100 litre) collector unit. This provides two key benefits: firstly, the grooves don't get covered by debris, which enhances the yield of the seed injection; secondly, the thus assembled debris is easier to clean up afterwards. A system of additional ventilation wings in between the blades ensures optimum collection of the dirt. Perforations at the front side of the collector unit ensure that part of the earth thrown up during the cutting process finds its way back to the lawn, thus minimising the required manual waste discharge.

9.6.3 Overseeding



Caution:

The operator must comply with clothing prescriptions and wear the required personal protection (see General safety instructions).

- Proper gardening starts with studying the work area, removing any obstacles and determining a work pattern and a route (read § 9.6.2.). It also involves proper preliminary machine inspection and settings (read § 9.1 and 9.4).
- The overseeding procedure can start as soon as the machine is on the work area, at the beginning of the defined route.

- Always situate the machine to move in a straight line relative to the intended lane; it avoids having to immediately turn and adjust course whilst the blades are protracted to at work depth.
- Set the motor to full throttle (3,200 RPM)
- Press down the All-in-one™ Control handle. This action activates the following functions:
 - Activation of the blade drive
 - Activation of the acceleration
 - Opening the seed reservoir
- The machine now becomes a dangerous object, requiring the operator to concentrate on his movements. As long as he is operating the machine, his full attention must be on the job.
- Now set the appropriate operating speed using the gear shift on the steering rack. The set speed is a matter of preference and depends on the following factors:

1. Amount of moss in the grass

2. The length of the grass

3. Wetness of the grass

Explanation: As described under § 9.6.1 (Driving the machine), slippage of the rollers can be avoided by matching the traction and driving speed to the grip force on the surface. Reduced grip force on a moist surface justifies a lower speed.

4. Dryness of the surface

5. Type of soil

6. Blade depth

7. Degree of wear and tear on the blades

Explanation: Groove cutting is the heaviest task in the overseeding procedure and while most of the motor capacity will therefore be sent to the blades, that capacity also depends on the force required to cut through the soil, which in turn depends on the factors mentioned above. The higher the driving speed, the higher the amount of soil that needs to be cut per rotation of the blade, and hence the higher the required capacity. The driving speed must therefore also be adjusted to the conditions of the soil.

8. Stones in the soil

Explanation: In rocky soil, it is impossible to remove all of the hindrances in advance. You simply have to assume that the blades will come in contact with stone. Stones can damage the blades on impact. A low driving speed will reduce the amount of energy on impact and increase the time the operator has available to react. From a safety point of view it is therefore recommended to reduce speed in rocky or stone-rich areas.

- Now, let the machine drop down from transport mode to operation mode.
- By pushing in both operator handles at the same time, the traction wheels will propel the machine forward in a straight line and the sowing drum will begin to rotate.

**Caution:**

When starting to move forward, it is suggested to push in the operating handles of the traction wheels slowly and lightly lifting forward the steering bar. Starting up the machine too quickly can cause the machine to tilt backwards.

- If needed, the driving speed can still be adjusted.

9.6.4 Dethatching

The overseeder can also act as a dethatcher. The following items must be taken into consideration:

- The preparations with respect to the machine and work area listed for the overseeding procedure also apply to dethatching.
- It is recommended to cut the grass very short before dethatching.
- Contrary to overseeding, dethatching is a superficial operation. The objective of dethatching is to mechanically remove all parasites (moss, felt, weeds, dried grass, etc.) from the lawn, the blades should only make slight contact with the soil (max. 3 mm).
- Adjust the work depth of the blades to 2 mm (read § 9.4.1.3).
- Since we have yet to do any overseeding, no seeds should be in the seed reservoir. Empty it.
- Machine operation is identical to that for overseeding.
- Because dethatching requires less capacity than overseeding, a higher work speed is allowed.
- The same routes can be applied as for overseeding.
- In case of excessive amounts of moss it is recommended to make two runs of the entire surface, the second one perpendicular to the first.
- During dethatching, the seed grooves may get filled with debris. It is therefore recommended to clean out the seed grooves after dethatching and prior to overseeding.

Cleaning the machine



Warning:

Repairs, maintenance and cleaning must only be performed with the motor disengaged and the spark plug cap decoupled.



Warning:

Always wear safety gloves when checking defects or performing maintenance to the machine.

Failure to clean the machine will induce quicker wear. A machine functioning sub-optimally can compromise the operator's safety.

Failure to clean the machine can cause:

1. Increased wear of the bearings
2. Increased wear of covers
3. Jamming of moving parts
4. Reduced cooling
5. Risk of fire
6. Inability to notice cracks or tears
7. Damage to the paint
8. Illegibility of stickers

- Thus, after each use, it is recommended to clean the machine. Cleaning the machine can also be regarded as a visual check. It offers an opportunity to timely notice any breakage or need for lubrication.

Tip: clean the machine immediately after overseeding. Mud and soil then won't have a chance to dry up and stick to parts which makes cleaning and rinsing considerably easier.



Caution:

Wear suitable clothing for cleaning activities. Utility gloves are necessary.

The following points require special attention:

- Always remove the seed from the seed reservoir after an overseeding session (use a vacuum

- cleaner to remove the seed from the deeper lying areas).
- Also check that the seed funnels are completely free from clogs.
 - The motor should be clear of dust and dirt. More in particular the cooling fins, the exhaust and the area around the exhaust must be clear. 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 on a regular basis.
 - Check and lubricate the chain drives.
 - The bushings must be cleaned from sand and dirt that sticks to the lubricating grease. After cleaning, apply new lubricant (see § 11.2 for a list of lubricants).
 - Use a dry cloth or soft brush 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.
 - The transmission parts and hinges located under the large cover must be kept dust free as much as possible. (Use the cleaning job to lubricate the chain drives; read § 11.4.2.)
 - Remove the dirt above the vibrator reeds. Check these for any damages.
 - Check that the blades (read §11.4.8) are not damaged or bent.
 - Clean the blade compartment and the collector unit. Use a water sprayer to rinse off any persistent dirt.
-
- Clean the traction wheels so as to prevent dirt from caking up on the wheels. Also clean the scraper of the anti-scalping wheel.
 - Use a dry cloth to remove dirt from the chassis and more specifically from the stickers with safety instructions.
 - A steamer may be used for cleaning the machine. Do not spray excessive amounts of water on the bearings, electric contacts and filler caps. Water is the number one cause of rust and this must be avoided at all times. Allow the motor to cool down properly before treating it with water.
-
- A number of additional points must be observed in the cleaning procedure before long term storage of the machine (read more in § 12).

9.8 Fault diagnosis

9.8.1 The motor fails to start after idle periods.

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

- a) No petrol
- c) Stale petrol
- d) Bad spark plug
- e) Low on oil

**Caution:**

Before examining possible reasons for the fault, make sure the ON/OFF switch for the motor is turned to the OFF position.

a) No petrol

In § 12 - Storing the machine - you are advised to remove any residual petrol before long term storage of the machine. If this slipped your mind, you may have forgotten to refill the machine. Check that the tank is adequately filled and refuel if necessary (read § 9.4 refuelling).

Let the starter motor run for a while after refuelling. Close the throttle (choke) - the petrol will now be sucked into the line. The motor will start running as soon as the carburettor has filled.

c) Stale petrol

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.

Pump out the contents of the fuel tank and refuel with fresh petrol (read § 9.4 refuelling).

**Caution:**

Always exercise precaution. Even stale petrol can still be incredibly flammable.

d) Bad spark plug

Without the proper ignition, it will be impossible to get the motor up and running. For this reason, check the spark plug. (Read § 11.3.5 Checking the spark plug)

e) Low on oil

The motor's crankcase is filled with motor oil to lubricate and cool the pistons. Lack of oil can lead to increased wear of the motor. To protect the motor the machine has been equipped with a control switch that will disengage the motor if the machine is low on oil. Check the oil level and refuel as necessary (read §11.3.3 Checking the oil level of the motor).

9.8.2 Motor shuts off whilst in use

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

- a) No petrol
- b) Lack of oil in the motor
- c) Machine is on a slope
- d) Technical defect



Caution:

Before examining possible reasons for the fault, make sure the ON/OFF switch for the motor is turned to the OFF position.

Take the following steps to restart the machine in case of one of the following:

a) No petrol

Might you become so absorbed in your work that you fail to realise from the indicator arrow that the machine is running on empty, then it could suddenly turn off. In this case, refuel the tank (read § 9.4 Refuelling)

Let the starter motor run for a while after refuelling. Close the throttle (choke) - the petrol will now be sucked into the line. The motor will start running as soon as the carburettor has filled.

b) Lack of oil in the motor

Also read § 9.8.1 under point d.

c) Machine is on a slope

Whilst working on a slope in the lengthwise direction, the motor may suddenly stop. This is caused by the oil alarm which works on the basis of level measurement; it detects a false oil level when the machine is in a slanted position. This is enough reason for the system to switch off the motor.

The solution is to wait a few moments before restarting the motor. The problem will return if you continue to do work on an incline. After checking the oil level on an even surface (read § 11.3.3), the oil safety system may be disengaged temporarily. Don't forget to switch it back on after the work is finished.



Warning:

Neither ELIET, nor HONDA 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.

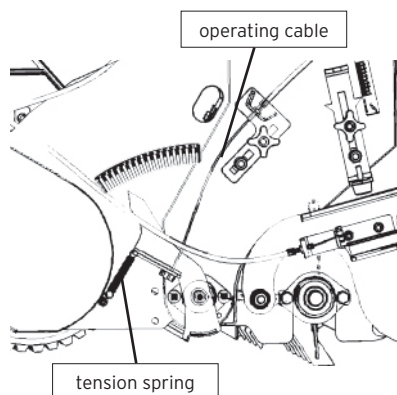
d) Technical defect

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

9.8.3 Loss of 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 foreign object (stone, stick, etc.) is blocking the scatter openings. When closing the seed reservoir, openings fail to slide shut completely, which causes seed loss.



- The opening to the seed reservoir is closed off by way of a tension spring. If this tension spring is broken or has come loose for some reason, the seed reservoir will not close itself. This will result in unintentional loss of grass seed.
- It can also occur that the operating cable is too tightly stretched or knotted up for one reason or another.
- As a result of dirt caking up in the opening of the seed reservoir, it is possible that the tension spring may not be strong enough to pull the opening shut. To solve this problem, clean the crack in the opening (with compressed air) when the seed reservoir is empty.
- Expansion of the felt underneath the opening due to moisture, resulting in the seed reservoir no longer being able to close properly.

9.8.4 Irregular sowing pattern

If the seed flow rate has been set correctly, the seed on the overseeded surface should be hardly visible. The seed visible in the grooves should have constant density along the entire work width. If you notice an irregular seeding pattern whilst working, i.e. no seed in some places and lots of seed in others, then this be the result of the following cause:

- The seed coming out of the seed reservoir is guided into the groove via a narrow opening.
- Sometimes, one or more openings can get blocked as a result of dirt, moisture or a blocked

scatter opening, and they will no longer be able to scatter seed. These blockages will usually disappear automatically, and the seed that was stacked in that particular opening will be scattered in one go, causing an abundance of seed in places. This will obviously be visible in the lawn once the seed starts to grow. As soon as irregularities are detected, the openings in those places will be inspected.

Continual irregularities in the seed flow across the entire work width can be the result of the following :

- A rotating drum fitted at the bottom of the seed reservoir ensures a constant seed flow. It is driven by a chain and runs synchronously with the machine's operating speed. A defective drive will result in an irregular seed flow. Possible causes of a defect:
 - o Broken chain
 - o Displaced chain
 - o The locking pin on the sprocket of the axis of the rotating drum broke down.
 - o Sprocket on roller came loose
 - o Locking pins of the rotating drum on the driving axis came loose.

9.8.5 Loss of debris

Under normal circumstances, the debris discharged from the machine gets deflected to a collector unit. As a result, the lane that has been worked will remain relatively clean. If a lot of debris is deposited in the work area nonetheless, this can have the following reasons:

- The collector unit is full
- The ventilation holes in the collector unit are clogged by caked up dirt or debris (moist subsoil). The perforated holes in the collector unit ensure that part of the dirt kicked up during the carving process will fall through these perforations back onto the lawn, thus minimising the required manual waste discharge. When these ventilation holes become clogged, the collector unit fills up faster than under normal circumstances.
- The collector unit is not properly attached to the machine
- The flaps between the blades, which ensure that the dirt is projected outwards towards the front of the machine, are worn or dirty. Replace or clean them.

9.8.6 A trail of damage to the lawn

Whilst overseeding, one could suddenly inflict an abnormal trail of damage in a worked lane. This damage could be caused by the following:

- Since the blades do the ground work, they will be the first to be examined. Presumably, one or more blades struck an object in the ground, causing it to become bent and carve out wide, unsightly grooves.

Read § 11.4.8 Checking blades for defects.

- It is possible that an object has become wrapped around the blade axle and causes a damage trail apart from the blades themselves.
- Otherwise, the vibrator reeds are touching the ground. If one of the springs were damaged or bent, then this could also inflict damage. There could also be a foreign object wedged between the springs, which could cause damage to the lawn.

9.8.7 Undesired activation from transport or operation mode.

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

- The safety lock remains stuck after operation: check, clean, or replace the locking mechanism as necessary.
- The cable that operates the locking mechanism or the locking mechanism itself is unwillingly overpowered by some obstacle or another (for example, when passing by a bush or shrub, etc.)
- The locking mechanism cable is too tightly stretched. Ease up on the cable tension.

9.8.8 The machine remains locked in its set height (transport or operation mode).

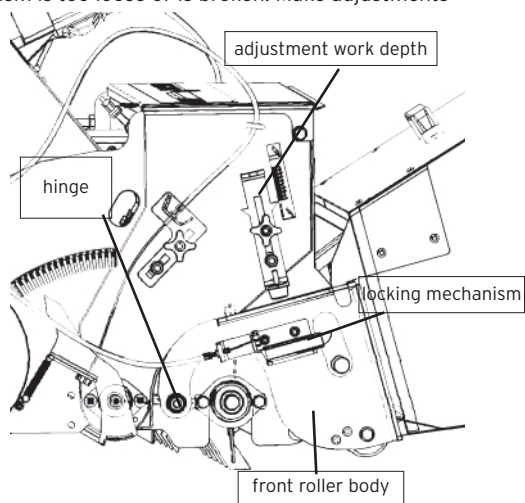
If during operation or overseeding, the machine fails to respond to the command to return to either transport or operation mode, then the following may have occurred:

1. The machine remains stuck in work mode:

- The hinges of the front roller body are stuck because of dirt, debris or insufficient lubrication: clean the hinge and apply a generous amount of lubricant.
- There is a build-up of dirt and debris between the front roller body and the frame of the machine: thoroughly clean the gap between the front roller body and the frame.
- The cable that operates the locking mechanism is too loose or is broken. Make adjustments or replace these if necessary.
- The safety lock remains stuck: check, clean, or replace the locking mechanism as necessary.

2. The machine remains stuck in transport mode:

- The hinge of the front roller body is stuck because of dirt, debris, or insufficient lubrication: clean the hinge and apply an appropriate amount of lubricant.
- There is a build-up of dirt and debris between the front roller body and the frame of the machine: thoroughly clean the gap between the



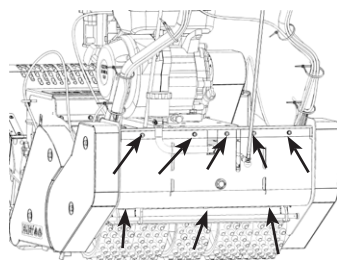
front roller body and the frame.

- The cable that operates the locking mechanism is too loose or is broken. Make adjustments or replace these if necessary.
- The safety lock remains stuck: check, clean, or replace the locking mechanism if necessary.
- The work depth adjuster is set to the minimum work depth (for example, after transporting the machine). Read § 9.4.1.2 Setting the work depth

9.8.9 The machine deviates off a straight path

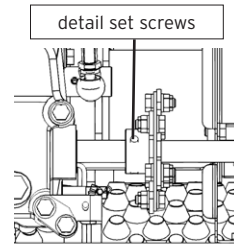
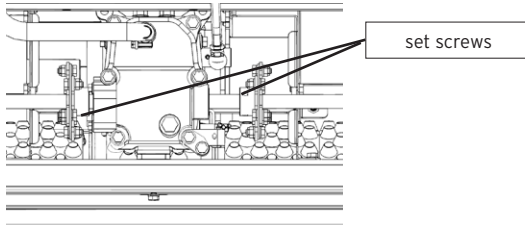
When driving the machine in a straight line (both handles are fully squeezed in), it pulls off path. This could be caused by any of the following problems:

- The belt decouplings on both rollers is not equally calibrated. For correct calibration, read § 11.4.3
- The belts on one side of the machine are more worn or stretched out. Change the belts Read § 11.4.4
- The tensioning roller(s) on one side of the machine is / are more worn. Check for wear and tear on the bearings and tread. Replace if necessary (read § 11.4.5)
- The roller bearings or drive axle of the roller drive is dirty or worn down. Clear, add lubricant, or replace these if necessary.
- Check whether the flange coupling is still bound to the axle using the set screws (2x).
For this, it is required that you first loosen up the rear plate of the DZC550:



- You loosen up the five bolts (M6) on the upper part of the plate and the three bolts underneath.

Check whether the set screws are still tight on the axle.



9.8.10 AIO control handle is adjusted too tightly

It could be the case that the AIOC handle is too tightly adjusted. This can be resolved by remedying one or more causes:

- The cable wire for the All-in-one™ control handle (AIOC) for the blade mount is too tightly adjusted. The spring at the end of the cable wire has to support too much weight.
Read § 11.4.2.4
- The cable wire for the AIOC handle to the seed reservoir is too tightly adjusted.
Read § 11.4.2.4
- Check whether the seed reservoir still closes smoothly. (Damp felt strip? etc.). Read § 9.8.3
- The cable wire for the thrust lever to the motor is too tightly adjusted. Read § 11.4.2.4

10. Transporting the machine



Actions to take before loading

Actions to take before loading

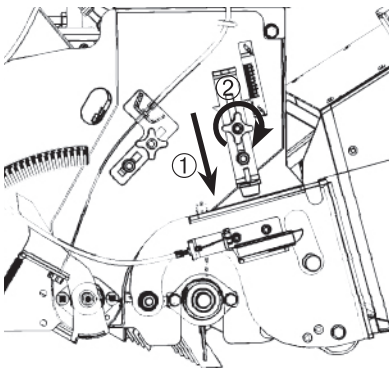
Wear the appropriate clothing for loading and offloading the machine.



For your information:

also read § 9.6.1 Operating the machine; this chapter contains useful instructions for safely operating the DZC 550.

- If you arrive at the end of the seeing field, then the All-in-one™ control handle (AIOC) and the operating handles of the traction wheels should be released, which disengages all driving forces on the machine.
- Subsequently, the machine is reverted to transport mode and is locked into place. This is done in the following manner:
 - o Check whether the locking mechanism is slid out.
 - o Pull down both depth regulators completely against the front roller body and tighten this using the screw knobs.



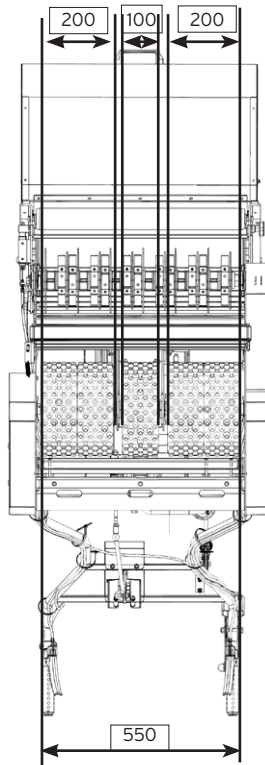
This ensures that the machine is locked into transport mode. The “transport/operation mode” handle is already operated unintentionally as it is.



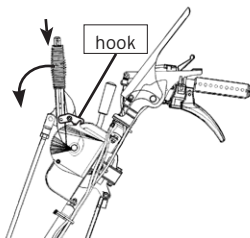
Warning:

Loading and offloading the overseeder requires preparation and concentration. You are dealing with a heavy machine that will be hard to control if it should start to slide.

- It is preferred that you load the machine with the motor running on empty, which is better for managing the wheel drive when loading and offloading. This will also reduce the effect of steering errors or loss of grip. If you notice you have a shortage of strength, then the thrust lever can be used to give it more gas if needed.
- When pushing the machine onto the ramps, keep it in a straight line and avoid steering corrections.
- Bystanders must remain at a safe distance (10 m) during transport, loading and offloading.



- For safe transporting, dismantle the collector unit from the machine prior to loading. We advise that the collector unit not be transported in the trailer unit. Put it in the trunk of your car so that the collector unit does not become damaged during transport.
- Prior to loading the machine, the brake lock needs to be activated and the brake pressed such that the brake block does not nudge up against the roller wheels.



The brake hook is best placed in neutral whilst transporting. This makes it so that in the event of an emergency, a simple push on the brake handle will immediately activate the brake.

**Caution:**

As soon as you feel you are about to lose control of the machine, immediately grab the brake with the left hand to bring the machine to a halt.

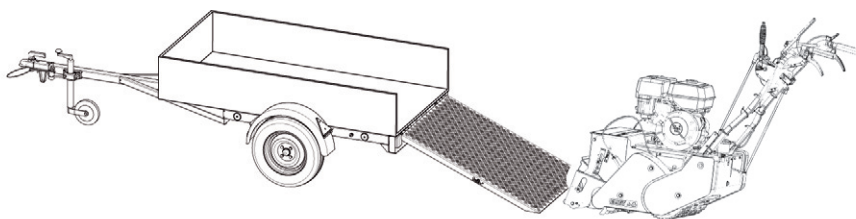
- If the brake gets activated on a slope, then follow the following steps to set the machine back into motion:
 - o Make sure that the hydrostat lever is not in neutral. If you release the brake when the lever is on neutral, then the machine will immediately become uncontrollable.
 - o Put the hydrostat lever in forward and carefully let up on the brake with the left hand while the traction is activated with the right hand simultaneously.

**Caution:**

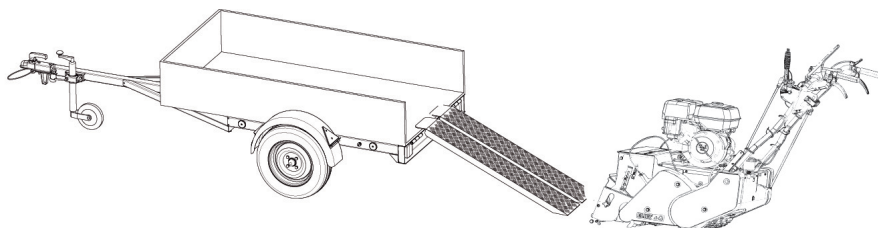
Never activate the blades during transport!

Loading the machine in the trailer

- A ramp the width of a trailer provides the safest loading/offloading method. It provides support for each point, even if a traction difference on the rollers causes a slight deviation from the straight line.



- If only two ramps are used, they must each have a width of at least 30 cm. If these are pushed together, then this creates tread that corresponds to the width of the rollers.



Use a non-slip ramp for loading the machine into a van or onto a trailer.

- Ensure that the ramps are properly hitched onto the vehicle or trailer. Ensure that the traction cannot detach the ramps.
- The machine weighs over 241 kg; make sure that the ramps have the bearing power to carry both the machine and the operator.
- If loading the machine onto a utility trailer, the trailer itself should be hitched onto a vehicle.
- Under no circumstances should the angle of the incline exceed 25°.
- Take good care at the ramp angle at the top. A dangerous situation can occur if the bottom of the machine were to make contact with the ramp angle and the rollers lose contact and grip on the ramps as a result. Be prepared for this and reduce speed. Lean over or push your weight on the steering wheel at the moment you pass over the ramp angle. This will relieve the front of the machine, reducing the risk of damage (vibrator reeds, blades, etc.); it also puts additional pressure on the back of the machine, allowing better grip of the rollers and reducing their risk of slipping.
- If you are in jeopardy of losing control over the machine, then immediately release the operating handles and press the brake.
- In other cases, you can push the machine away from you and turn it on its side.
- Keep in mind that starting the machine too quickly can cause the machine to tilt backwards.
- When on a decline, always brake lightly using the brakes.
- 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 run the machine for more than 30 seconds in a closed environment where animals or people are present. Exhaust fumes from petrol motors contain toxins that can cause poisoning or suffocation.

- Don't run the motor longer than necessary when (off)loading the overseeder into/from a closed van. Open all the doors of the loading area to ensure sufficient ventilation.

Attaching the machine in the trailer

- Make sure the machine is properly attached in the vehicle during transport. Attach ropes to the fixed chassis parts to secure the machine.
The steering is a good place to attach the machine. Attach your rope as low as possible on the steering on both sides, and secure the rope in the front of the trailer so that the machine is pulled towards the front. Make sure that the rope does not damage the cabling of the machine.
- The ropes, belts or tensioner belts used must be in a perfect state and capable of sustaining a tensile load of 500 kg.



For your information:

Always close the petrol tap on the machine before transport. Failure to do so may result in excessive amounts of petrol being fed into the motor, causing starter problems and the risk of having to change the spark plug.

- In transport mode, the machine's ground clearance is 40mm.
- When going over stoops between 40 and 60mm, it is advised to go across it in reverse.
- A ramp must be provided if the machine has to go over a step or curb higher than 60 mm.



For your information:

Machine breakage or defects resulting from incompetent operation are excluded from the warranty conditions.

11. Maintenance



11.1 General



For your information:

The dealer and his staff are readily at your service and can also rely on the ELIET help desk for support. This combination guarantees you the best joint effort to find a solution to any problems you may have. For repairs or maintenance you can turn to your authorised ELIET dealer or a service centre authorised by the motor manufacturer. Please always submit the model and serial numbers of the machine and the motor, as well as a complete description of the problem.



Caution:

Use only original ELIET or HONDA replacement parts for any repairs. These service parts are manufactured according to the same strict quality requirements and craftsmanship as the original equipment.

- Maintenance or repairs that are not described in this manual must be performed by an authorised ELIET dealer.

Perform maintenance in a room intended for this purpose.

The area must meet the following criteria:

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

These characteristics are important to properly carry out maintenance works.



Caution:

Maintenance performed in an incorrect manner may compromise the operator's safety.

- Maintenance should be always carried out with the motor turned off. As a precaution, the spark plug should also be removed or the lead detached.
- Wear safety gloves as much as possible when performing maintenance. Safety goggles may be required for certain operations. These are supplied standard with the machine.

TIP: In principle, the maintenance works described may be carried out by any person with technical skills. However, ELIET recommends that the machine be brought to an authorised ELIET service centre for a major overhaul each year.

Your ELIET dealer is always ready to carry out maintenance and provide advice. He stocks genuine ELIET replacement parts and lubricants. His staff can always obtain advice and service from ELIET's help desk in order to provide you with impeccable after-sales service.

11.2 Maintenance schedule

Special maintenance:

Changing the motor oil
 Checking the oil level of the hydrostat
 General check-up (checking bolts)

Each work session

Visual inspection	§11.4.1
Blade inspection	§11.4.7
Air filter inspection	§11.3.1
Oil level inspection	§11.3.3

Every 25 hours

Put in fresh oil	§11.3.4
Check belt tension	§11.4.
Check spark plugs	§11.3.5
Lubricate chains	§11.4.2.4
General lubrication treatment	§11.4.2

Every 100 hours

Replace blades	§11.4.8
Replace air filters	§11.3.2
Replace spark plugs	§11.3.5
Replace tensioning rollers	§11.4.5
Adjust chain tension	§11.4.6

Every 200 hours

Replace belts	§11.4.4
Replace bearings and blade axle	§11.4.9

Every 500 hours

Replace hydrostat oil	§11.3.10
Changing chains and sprockets	§11.4.6

Lubricants

Motor (1.4 L)	SUNOCO DENALUBE SAE 20W50 API SF / CC
Hydrostaat	MOBIL DTE 13M ISO VG 32
Lagers	NOVATIO PTFE OIL
Scharnierpunten	NOVATIO CLEARLUBE
Kabelgeleidingen	NOVATIO PTFE OIL
Smeerpunten	SUNOCO VET MULTI-PURPOSE LR - EP2
Kettingen	NOVATIO CLEARLUBE & PTFE OIL

11.3 Motor maintenance

11.3.1 Cleaning the air filter

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

- The filter may not become damaged, allowing unfiltered air to pass through the motor.
- 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.

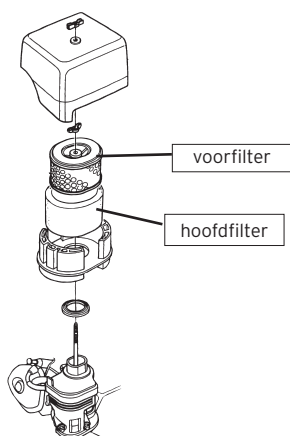


For your information:

Before starting maintenance, also always read the manual provided by the motor supplier. If a different procedure is suggested, then you should always follow the procedure in the motor manual.

- The air filter is located under a black hood on the motor. (Read the 'Critical components' in paragraph § 6.3 Motor.)
- Remove the wing nut in order to remove the filter cover, then tilt this filter cover upwards.

The filter you will see is constructed from two parts:



- Front filter made of spongy material (blocks large particles).
- Main filter cartridge made of layered paper (filters out small particles).

Remove the wing nut to dismount the filter cartridge.

How to clean the filter:



For your information:

Always read through the manual of the motor supplier

- The front filter may be rinsed out with a little petrol.



Caution:

Petrol is highly flammable; avoid open fire or hot objects in the direct vicinity.

- Using compressed air, thoroughly blow dry the filter to eliminate all petrol and dust.
- With a paint brush dipped into motor oil slightly moisturise the outside of the sponge filter. Course dust particles will now stick to the filter more easily.
- The filter element can simply be tapped clean.
- The filter may be cleaned with compressed air, provided that the jet stream is kept at some distance from the filter and that the air is blown from the inside out.



Caution:

Releasing a stream of compressed air too closely to the filter element may cause micro-perforations that will render the filtering properties completely useless.

- Using compressed air, completely clean the plastic hood and the filter socket from dust and dirt.
- After cleaning, remount the filter elements in their original position.

11.3.2 Changing the air filter

This action is almost identical to cleaning the air filter (see § 11.3.1 Cleaning the air filter). The only difference is that in this case, the element is replaced.

New air filters suitable for your machine are available from your ELIET dealer or an authorised service centre of the relevant motor brand.

Front filter

Main filter cartridge made of layered paper.

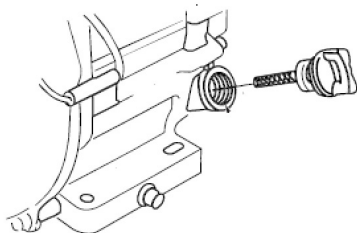
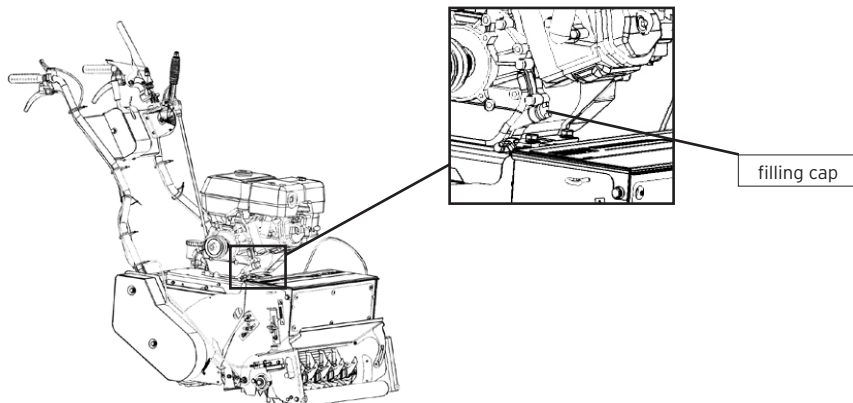
When mounting the filter element, make sure that it sits snugly against the packing ring to avoid false suction.

11.3.3 Checking the oil level of the motor.

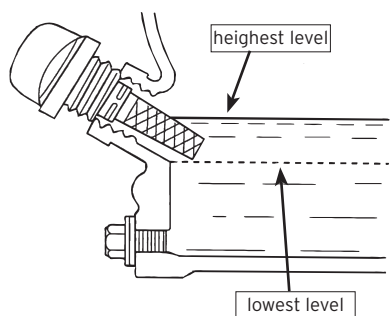
- Place the machine on flat ground.
- Disengage the motor and leave it for a while to allow the oil to seep back to the oil sump (approx. 5 minutes).
- Release the machine from transport mode and let the machine drop down until the blades are fully supported on the ground. This is how the motor ends up in its quasi-horizontal position.
- With a clean cloth, clean the area around the filler cap (closest to the seed reservoir).

**Caution:**

There are 2 oil drainage plugs and 2 oil filler caps on the motor. Only the oil drainage plug on the operator side and the oil filler cap on the side of the seed reservoir are used with this machine!



- Remove the filler cap with the dipstick attached to it from the crankcase.
- You will notice soon thereafter if there is enough oil in the crankcase. The oil level in particular should come up to the brim of the filler opening. The oil on the dipstick should touch the maximum mark.



- If the oil tank is not filled to the brim, this indicates a lack of oil.
- 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.
- Since the location of the filler opening is in a somewhat awkward position, we recommend the use of a tube or special funnel to avoid oil spills. Always clean the funnel before passing any oil through it.

- Use only recommended oil (see list of recommended oils in the motor manual).
- Immediately wipe away any spilled oil.

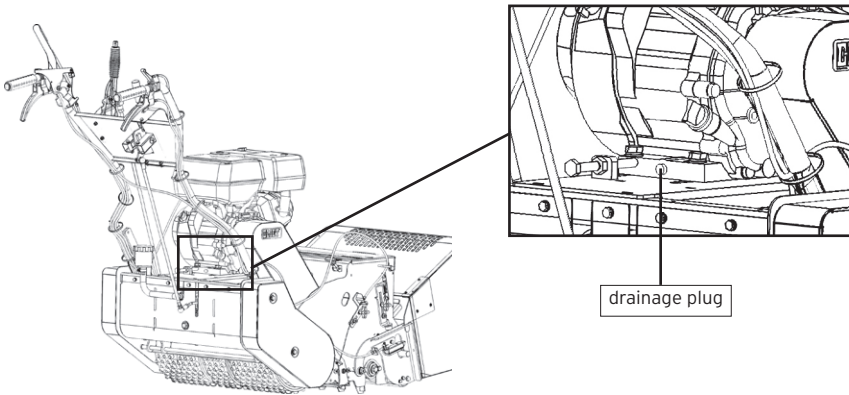


Caution:

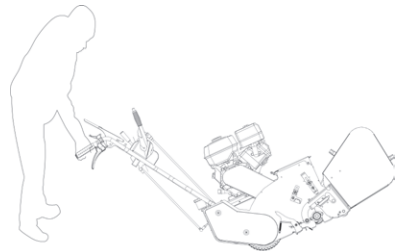
Avoid any dirt from leaking into the crankcase via the filler cap.

11.3.4 Changing the motor oil

- Make sure that the machine is sitting on flat ground and that the motor is switched off.
- On the rear, you can see the bolt head of the drainage plug in the motor base from being the steering.



- Have a two litre collection reservoir ready before unscrewing the plug.
- Clean the area around the oil filler cap on the other side of the motor and unscrew the cap, allowing the crankcase to vent while emptying the tank.
- Now screw loose in the drainage plug without unscrewing it completely. Use a 22 mm wrench.
- Now push back on the steering of the machine so that it tilts backwards over the roller wheels. Press the steering completely to the ground and hold it in place.
- Put the receptacle behind the machine and twist out the drainage plug completely from the motor base.
- Empty the full contents (approx. 1.1 L) from the motor. Make sure that all oil is properly collected in the receptacle.



- Tilt the machine forward again.
- Twist in the plug back onto the drain and re-tighten it (Caution: do not tighten too much to prevent the motor base from cracking).
- Wipe away any spilled oil with a clean cloth.
- Refill the motor with fresh 4 stroke oil at the foremost filler cap. For this, ELIET recommends a top quality, high-detergent motor oil: SUNOCO DENALUBE SAE 20W50 API SF / CC. (Also see the manual from the motor manufacturer).
- Slowly add the required oil, approx. 1.1 litres, until it reaches the brim of the filler opening.
- Replace and tighten the filler cap after refilling and wipe away any spilled oil.



Warning:

Oil shortage causes severe damage to the motor (This type of defect is not covered under warranty).



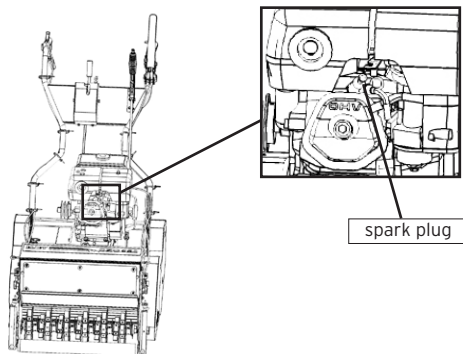
Warning:

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

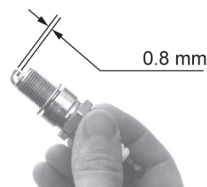
11.3.5 Checking and/or changing the spark plug

For the HONDA GX270 QXQ4 the motor manufacturer suggests the following spark plug: **NGK BPR 6 ES**.

- Make sure that the machine is secured in transport mode.
- Switch off the motor and let it cool down for a bit.
- The spark plug is on the rear side of the motor, the side closest to the seed reservoir.



- Pull off the cap from the spark plug.
- Clean off the area around the spark plug and rotate it out of the cylinder head (spanner size : Imperial 13/16 inches).
- Using a feeler gauge, check whether the distance between 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:

1. Put the spark plug cap back on.
2. Grab the rubber of the spark plug cap and press the outermost electrode against a large part of the motor.
3. Pull the starter cord.
4. Meanwhile, check for sparks between the two electrodes.
5. If the spark is a clear, continuous, bright beam and is nicely centred between the electrodes, then the spark plug is still good.
6. Weak, irregular and not well-centred sparks indicate that the spark plug must be changed.



Caution:

Replacing an old spark plug or putting in a new one must be done with utmost caution, avoiding any possible damage to the screw thread in the cylinder.

- Secure the spark plug with a torque of 20Nm.

11.4 Machine maintenance

11.4.1 Visual inspection

It is essential before commencing the work that the machine undergo an inspection. This will allow you to anticipate breakage or wear and tear that affects the life span of the machines.

- Check whether the machine operates at the proper rotational speed at full throttle (3200 RPM)
- Never attempt to change the default settings of the motor.
- Inspect the blades. Blades may bend on impact with a hard object under the surface. To avoid damage to the lawn, these types of blades must be straightened out again (Read § 11.4.8 Inspecting blades)

- Check that there is no build-up of dirt in the blade compartment.
- Check if the depth setting needs to be adjusted to compensate for the wear and tear on the blades (read § 9.4.1.2 Setting the work depth).
- Check if the seed reservoir closes completely when the AIOC lever is released.
- Check that the chains are lubricated enough (read § 11.4.2.4 Lubricating chains and chain wheels).
- Check that no parts have been deformed, that welded seams are not cracked and that parts are not excessively loose.
- If problems are found, carry out the necessary repairs or maintenance first.

Consult your authorised ELIET service centre for assistance if necessary or to obtain replacement parts. Find an ELIET service centre nearest you at

www.elieta.eu.

11.4.2 General lubrication treatment

ELIET is committed to using high-quality materials that extend a machine's life cycle, despite the machine being subjected to what can be extreme working conditions.

For this reason, special lubrication products have already been applied in the factory. Periodical and regular lubrication will extend the machine's life and performance. During periods of drought, the frequency of lubrication treatments should be increased.

LOTS OF DUST => REGULAR CLEANING AND LUBRICATION

The parts below must be lubricated with care.

- Hinges and ball joints (see "11.4.2.1 Hinges and ball joints" on page 70<?>)
- Bearings (see § 11.4.2.3)
- Chains and gears (see § 11.4.2.4)
- Friction surfaces (see § 11.4.2.5).



Caution:

As for other maintenance, the engine must be switched off and the starter key removed from the starter lock before performing any lubricating activities. Always lock the machine in transport mode beforehand. Protective gloves must be worn.

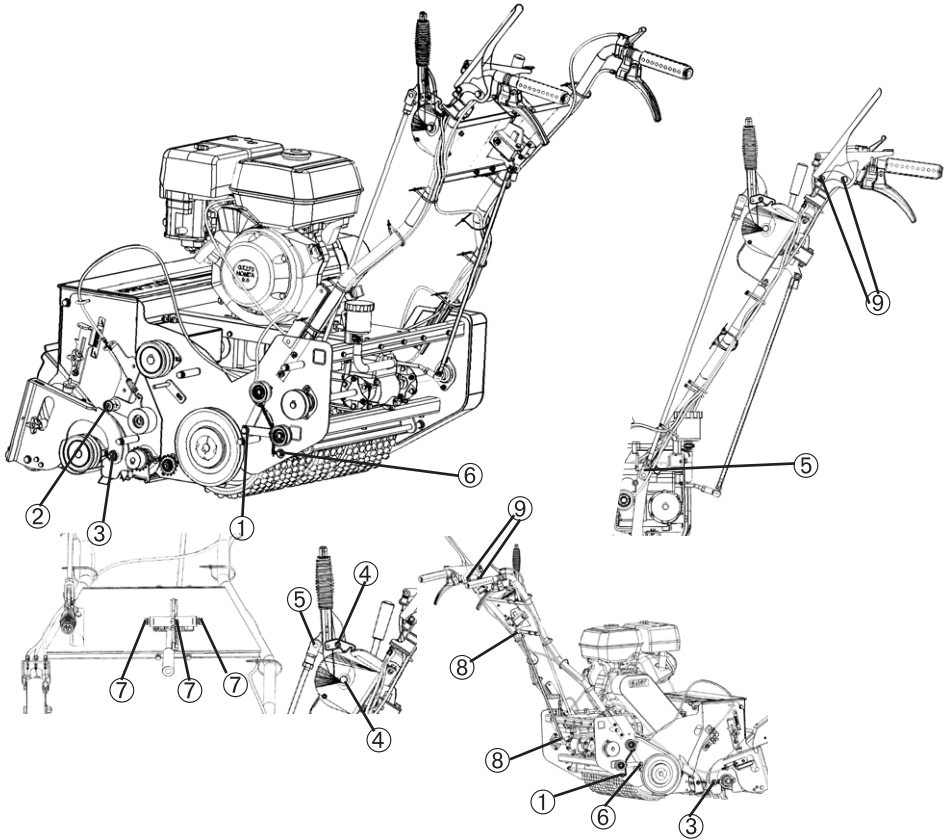


Caution:

Most lubricants are flammable. Always read the safety messages on the packaging. Keep away from open fire or hot objects when performing lubrication works.

11.4.2.1 Hinges and ball joints

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 in breakage. Some of these items require specific attention:



1. Hinges for belt tensioners left and right of the roller drive
2. Hinges for belt tensioner of the blade drive
3. Hinge of the front roller body (L & R)
4. Hinge of the handle and blocking mechanism for the parking brake
5. Hinges in prongs of the push bar for the braking system
6. Hinges of the brake plate (L & R)
7. Hinges in the lever for setting the operating speed
8. Ball joints of the rod for setting the operating speed
9. Hinges for the AIOC lever

Lubricating hinges:

- To reach the points indicated, some protective covers and shields will have to be removed (Read § 11.4.12 if necessary).
- 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.
- To dissolve lubricant, ELIET recommends the use of ELIET NOVATIO KLEENSPRAY-S. Spray the product onto the hinging 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.



Caution:

NOVATIO KLEENSPRAY-S is flammable. Avoid open fire or heat when applying it.

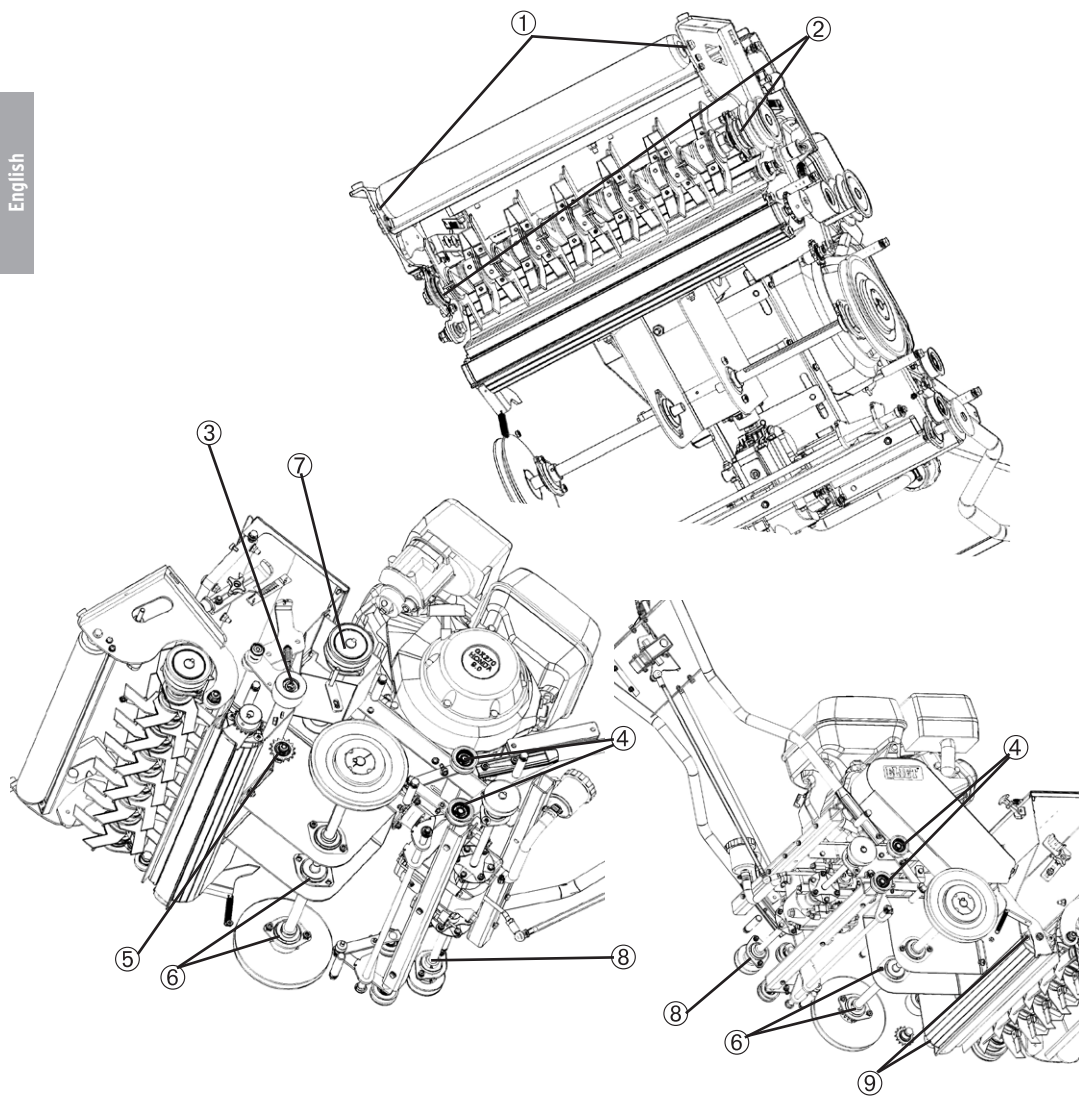
- Apply new lubricant to the friction areas. Ensure that it covers the entire contact surface.
- ELIET recommends NOVATIO CLEARLUBE, a lubricant with an extremely long operating time, great adhesion and resistant to high pressure. It is available in spray cans for easy application.
- Reassemble the hinge and fasten all parts.

11.4.2.2 Bearings

Bearings' biggest enemies are an excessive load, dirt and lack of lubrication. Sowing machines are not the best media to guarantee a long bearing life. Regular maintenance is therefore required.

The following bearings are fitted on the machine:

1. Bearings in the front roller (2x)
2. Bearings of the blade axle (2x)
3. Bearings in the tension roller for the blade clutch (2x)
4. Bearings in the small tension rollers of the belt for the roller drive (L: 2x, R : 2x)
5. Bearing in the chain tensioner (1x)
6. Bearings of the roller wheels (4x)
7. Bearing on the drive axle of the blade drive (1x)
8. Bearings on the drive axle of the roller drive (L: 1x, R : 1x)
9. Bearings for roller drums in the seed reservoir (2x)



- To reach the points indicated, some protective covers and shields will have to be removed (Read § 15.1 if necessary).
- 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 this lack of lubricant, 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 good amounts of NOVATIO PTFE OIL into the joints of the bearing seals and the bearing bushing.
- This is a thin lubricant with great penetrating properties. It is corrosion resistant and moisture and dust repellent and also has great lubricating properties, even at high temperatures.

The chain grease applied will have worn away after a few hours, or will be cluttered with dirt and debris. To prevent wear and tear on the line shaft, you will need to apply lubricant regularly. The DZC 550 includes one Simplex line for the transmission for the roller wheels and rotating drums of the seed reservoir.

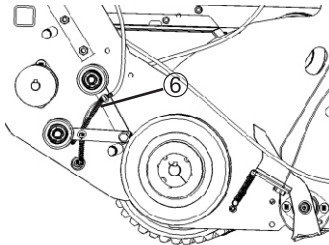
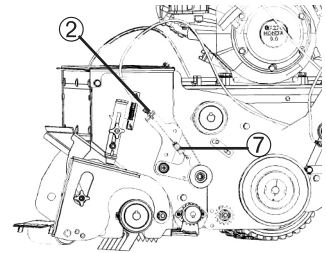
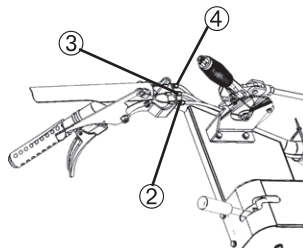
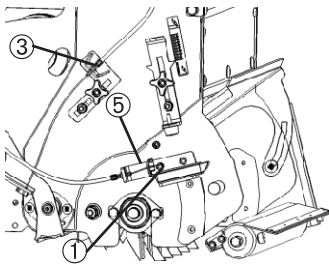
- For this type of maintenance, the rearmost side of the two left protective caps must be removed (read § 15.1).
- It is useful, before lubricating the chain, to first clean off the chain and wipe away any old lubricant cluttered with dirt and debris. The use of KLEENSPRAY may help to soak off and dissolve any old grease.
- Wipe away any old grease before applying new lubricant.
- So as to prevent the lubricant from wearing away all too quickly due to the rotation of the line shaft or the gravitational pull of the line, we opt for a less viscous, and more adhesive oil.
- Since both the chain inside and the contact surface with the gears need to be lubricated, ELIET recommends using a combination of two lubricants.
- NOVATIO PTFE OIL, is very viscous 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 gears.
- When replacing the protective cover, ensure proper closure to keep the inside free from dust.

**Caution:**

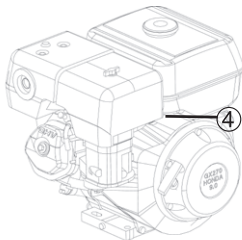
Particularly in periods of dryness, where dust production while working is important, you will need to run an inspection and lubricate the chain after each session.

11.4.2.5 Friction surfaces

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



1. Mechanism for locking the machine in transport mode.
2. Cable wire for All-in-one control™ lever (AIOC) for the blade mount.
3. Cable wire of the AIOC lever to the seed reservoir.
4. Cable wire of the thrust lever to the motor.
5. Cable wire for unlocking from transport mode.
6. Cable wire of the belt tensioner left of the roller drive
7. Cable wire of the belt tensioner right of the roller drive



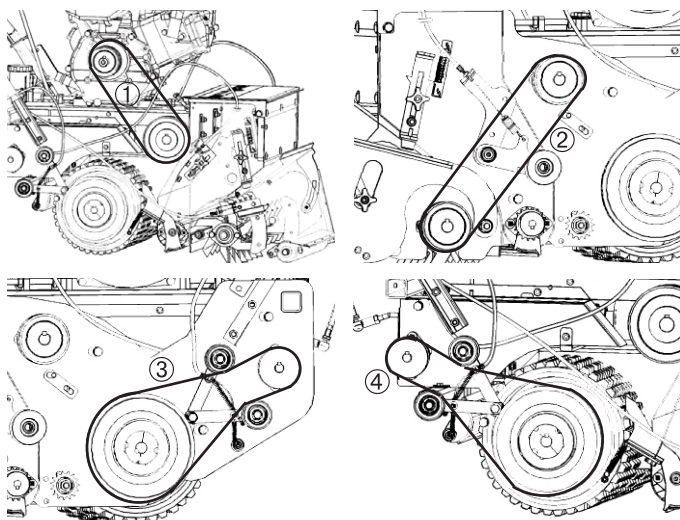
- Proper functioning of the control levers is crucial and regular lubrication of the cables is therefore of vital importance.
- In particular during dryer periods, operating the machine will produce a lot of dust that settles everywhere, including on the cables.
- Prior to lubricating, the cables must be cleaned. KLEENSPRAY is again an ideal tool.
- Also spray it into the cable guide and simultaneously move the cable back and forth to ensure that the cleaner penetrates the guide.
- 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. ELIET recommends NOVATIO PTFE OIL.
- The procedure is the same for all other friction surfaces mentioned earlier: first loosen old lubricant with KLEENSPRAY and wipe it away.
- Then spray NOVATIO PTFE OIL on the friction part.

All lubricants indicated are available from your authorised ELIET dealer.

11.4.3 Belt tension check and adjustment

The DZC 550 contains four belt drives:

1. Belt drive of the motor crankshaft to the mitre gearbox.
2. Belt drive for blades
3. Belt drive for the left roller drive
4. Belt drive for the right roller drive



The following describes the procedure for tightening the belts.



Caution:

Belt tightening must be done with the engine switched off.



Caution:

Always wear suitable clothing for performing this type of maintenance.

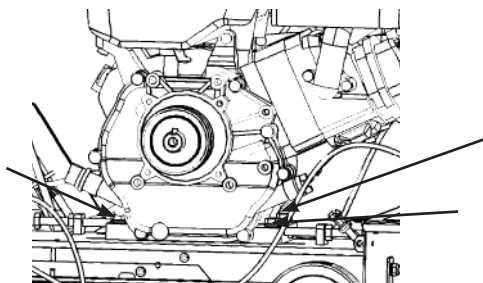
First belt drive (motor - mitre gearbox)

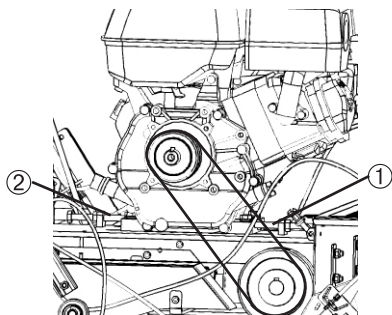
This is the primary belt drive that transmits the full horsepower of the motor to all elements powered in the machine. In order to ensure that this 9 Pk can be transferred without any slippage, two V-bolts (B profile) are provided.

These belts are permanently under tension. The transmission cannot be decoupled.

If ever during operation you get the feeling that the machine loses power when pressured or you notice a ticking or peeping sound coming from the belts, then it is best to check the belt tension because this is often a sign that the belts are too loose and are slipping:

- To tighten up the belt, the protective cover over the motor must be removed (read § 15.1). The ideal tension of the belt can be tested as follows: when the back of the belt is pressed at half the belt centre distance between the two pulleys with a force of 8 kg, then this should not move any more than 10 mm inwards.
- If you are able to press farther in, then the belt needs to be re-tightened.
- The belt tension can be adjusted by scooting the motor towards the rear. A mechanism is installed that allows the motor to be shifted towards the rear very precisely, after which the belt drive can also be re-aligned.
- You should first loosen up the four tensioning bolts of the motor base somewhat (M10, spanner size 17).





- Next, the long, set bolt (1) (M10) on the back side of the motor base should be rotated towards the rear (counter clockwise, spanner size 17). For this, first turn loose the locking nuts.
- By twisting in the set bolt (2) (M10) in front of the cylinder block, you can push the motor backwards (it is advised that place a steel plate between the end of the bolt and the motor base before adjusting, so as to avoid causing damage to the motor base) (turn clockwise, spanner size 17)
- If you can measure the desired amount of tension on the belts afterwards, then you should perform alignment.
- By tightening up the belts, the motor is slightly pulled towards the diagonal of the motor plate. This can be corrected by applying pressure against the motor base with the second set bolt (M10) (turn clockwise, spanner size 17).
- For checking the alignment, you put a straight bar up against the sides of the two pulleys (on the motor and the mitre gearbox). If the alignment is correct, then the bar will touch each pulley in two places. You can continue to twist in the bolt until this is reached.
- If the proper amount of tension is applied and the alignment is correct, then the motor can be reattached to the motor plate using the four fixing bolts (M10) (spanner size 17)
- Next, fasten the two set bolts using the locking nuts (M10)

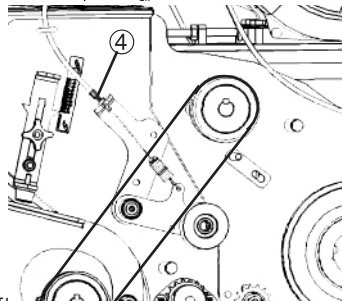
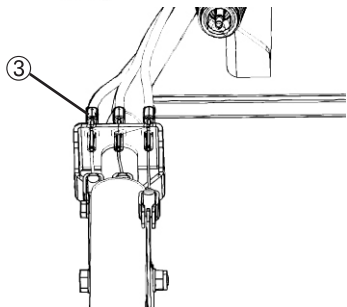
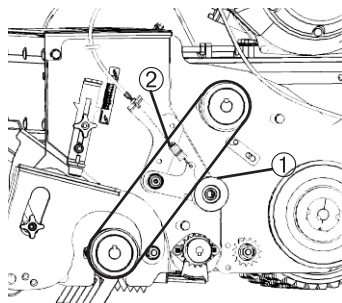
After performing this maintenance, the belt covers can be remounted like they originally were.

Second belt drive (blade drive)

These two belts are tightened with a flat tensioning roller that is pulled against the back of the belt when pressing down the All-in-one™ control. This is the belt drive that transmits power to the blades and, thus, carries the heaviest load as well. It is also a belt transmission that is frequently switched on and off, and it is therefore subject to slippage.

- If the belt starts to make a squeaking sound or if the resistance of the AIOC lever is too low, then this is a sign that the belt tensioning roller needs to be adjusted.

- In order to tighten up these belts, the first cover



After performing this maintenance, the belt covers can be remounted like they originally were.

- on the left-hand side of the machine should be removed (read § 15.1)
- You will know that you have reached the proper amount of tension if just before fully pressing on the AIOC lever (20 mm of play up to the handle), the belt tensioning roller (1) is already pressing against the belt and begins to tug onto the spring(2).
- If this is less than 20 mm, then the force of pressure from the tensioning roller will need to increase by adjusting the length of the starter cord.
- The cable guide provides two control options. One close to the AIOC™ lever (3) and one near the belt drive. (4).
- Remove the M6 lock nut (10 mm spanner size) and rotate the control guide counter-clockwise a few times. Use a (9 mm) spanner if necessary.
- Next, test the belt tension, and adjust as needed.
- Afterwards, twist in the lock nuts tightly so that vibrations cannot cause the part come loose again.

Third and fourth belt drive (left and right roller drive)

A hydrostatic transmission will determine the rotational speed on the pulley powering this roller drive in both the forward and reverse directions. This “small” drive pulley will always rotate as soon as the motor runs and the hydrostat is not in neutral.

Using the belt decoupling, the operator can determine whether the propulsion on this drive pulley also transmits to the “large” pulley for the roller.

Since the direction of rotation of the belt could be either forwards or backwards, two belt tensioners will be provided for optimal grip on the pulleys for each of the directions in which the machine will be operated.

Due to belts being stretched during operation for a few hours, the manufacturer’s settings can become disarrayed and the belts could begin slipping. You will be able to notice this since the

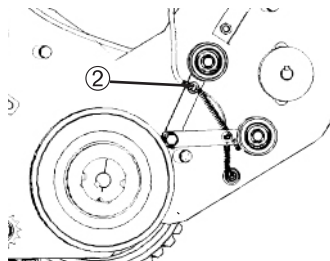
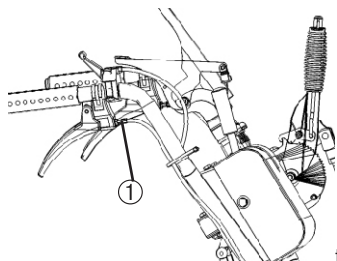
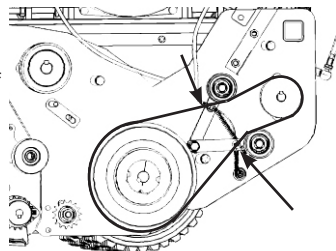
machine will always deviate off course when on a straight path, or because the machine will exhibit inadequate pull when climbing up a slope.

At that point, it is important to re-adjust the setting of the belt decoupling. Two items of importance concerning this belt decoupling:

1. The belt must be decoupled when releasing the operating handle, so that the machine does not start moving.
2. The belt must have enough tension when mounting so that there is not a loss of traction when the machine needs to be operative.

Thus, it is important to make the correct adjustments so that two conditions are met.

- When squeezing the traction lever, the two tensioning rollers press up against the back of the belt. Just before the lever is completely squeezed in (1.5 cm of play up to the tube), you will reach the maximum amount of pressure, and the spring at the end of the cable will be pressed in as well. PICTURE
- If the amount of play is too little, then the distance between the two tension rollers will reduce by adjusting the length of the cable wires.
- The cable guide provides two control options. One close to the traction lever and one near the belt drive.



- Remove the M6 lock nut (10 mm spanner) and rotate the control guide counter-clockwise a few times. Use a (9 mm) spanner if necessary.
- Next, test the belt tension, and adjust as needed.
- Afterwards, twist in the lock nuts tightly so that vibrations cannot cause the part come loose again.

After performing this maintenance, the belt covers can be remounted like they originally were.

11.4.4 Belt replacement

After many hours of operation, the belts may wear and require replacement. Replacement parts must always be obtained from an authorised ELIET dealer.

Belt 1 : (motor crankshaft - mitre gearbox transmission):	BA 521 208 820
Belt 2 : (blade drive):	BA 521 709 141
Belt 3 : (hydrostat to left roller):	BA 521 209 750
Belt 4 : (hydrostat to right roller):	BA 521 209 750

Follow the procedure below for replacing the belts:



Caution :

Belt tightening or replacement must be done with the motor switched off. Remove the key from the starter lock as a precaution.

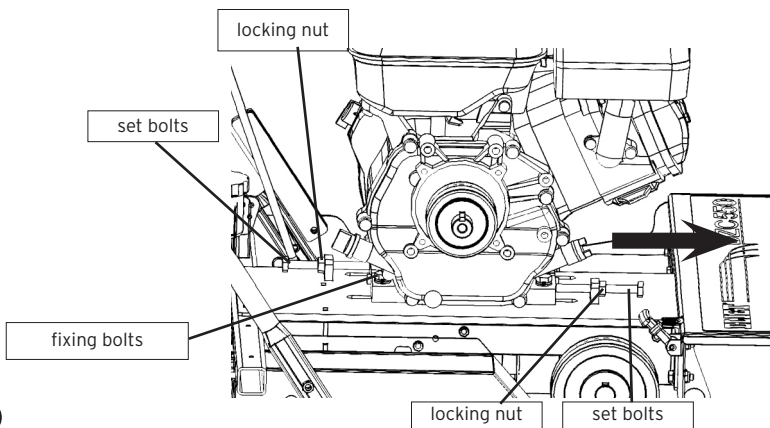


Caution :

Always wear suitable clothing for performing this type of maintenance.

First belt drive (motor - mitre gearbox)

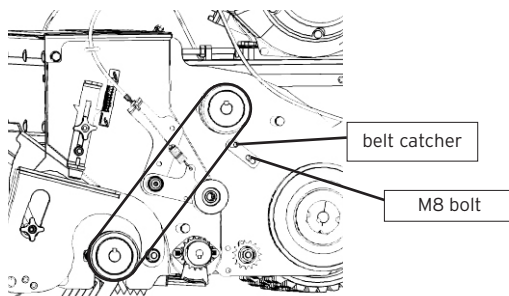
- In order to reach the belt, the belt cover will need to be removed (read § 15.1).
- Next, turn loose the set bolts for the tensioner (M10). Before this, twist loose the locking nut and twist out both bolts approximately 20 mm in a counter-clockwise fashion (spanner size 17).
- Turn loose the four fixing bolts (M10) of the motor on the motor plate slightly (spanner size 17).
- Slide the motor fully forward so that the belts come loose and can be taken off easily.



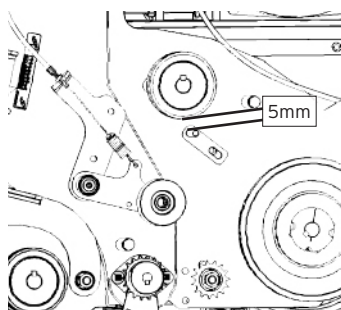
- Before putting on the belts, check whether they are the same type of belt and have the same length.
- Now apply the proper amount of tension on the belt again, and check the alignment (read § 11.4.3)
- After calibrating and testing the belt tension, place the protective covers back on.

Second belt drive (blade drive)

- In order to reach the belt, the front of the left belt cover will need to be removed (Read § 15.1 if necessary).
- If the belts are decoupled, then they are loose enough to be able to take off the pulleys. First, however, you should loosen the belt catcher at the level of the drive pulley. Before that, slightly turn the M8 bolts loose so that the belt catcher can turn away (spanner size 13).



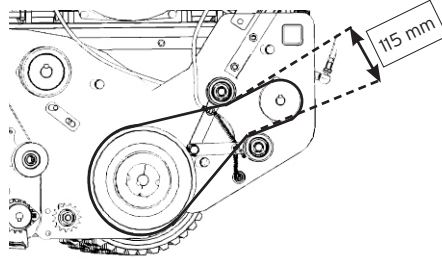
- Even here, the belt drive consists of two belts, so you should check whether the belts are of the same type and length before putting them on.
- After putting the belts back on, the belt catcher needs to be put on so as to prevent the belts from coming off when decoupling. They should be put on such that there is about 5mm remaining between the pulley and belt catcher.



- Now apply the proper amount of tension on the belt again (read § 11.4.3).
- After calibrating and testing the belt tension, place the protective covers back on.

Third and fourth belt drive (left and right roller drive)

- In order to reach the belt, the rear belt cover on the respective side will need to be removed (Read § 15.1 if necessary).
- If this belt is decoupled, then the belt can be lifted from the pulley without further disassembling it.
- The two tension rollers will need re-adjusting so that when decoupled, the axle distance between the two rollers is 115mm.

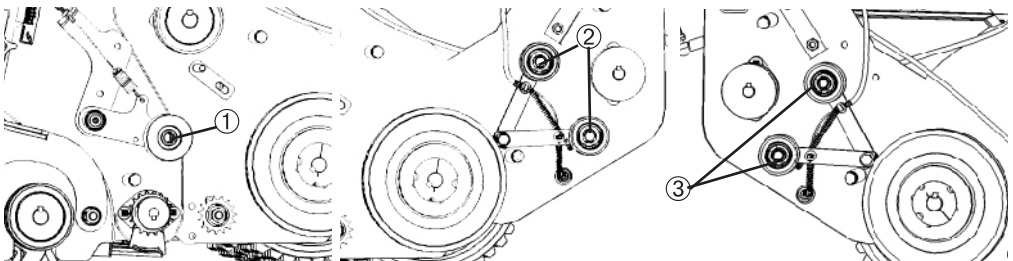


- Check the belt tension, and adjust as needed (read § 11.4.3.).
- After calibrating and testing the belt tension, place the protective covers back on.

11.4.5 Replacing the belt tensioning roller

The machine has 3 belt drives that are provided with a decoupling via a tensioning roller. After being in operation for many hours, the tensioning rollers can exhibit some wear and tear on the bearing and tread. This can contribute to increased wear and tear on the belts and cause the machine to break down. To prevent this, the five tensioning rollers will need to be inspected regularly and replaced as a precaution when needed.

1. Tensioning roller of the belt tensioner and blade drive
2. 2 tensioning rollers for the left roller drive
3. 2 tensioning rollers for the right roller drive



**Caution :**

For performing this maintenance, switch the motor off and pull the spark plug cable from the spark plug.

**Caution :**

Leave the tensioning roller to cool down before disassembling it.

Tensioning roller of the belt tensioner and blade drive

The aluminium roller that tightens the belt the moment the All-in-one™ control lever is pushed in is under extreme pressure :

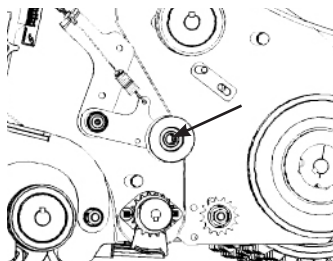
- The runner rotates against the belt at 2300 RPM.
- Due to friction with the belt the latter becomes very hot; lubricants become liquid and will leak from the bearings as a result.
- During periods of drought, dust will inevitably develop when operating the machine. Sand and dust will find their way 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 bearing starts to make a growling sound, we recommend to replace the tensioning roller as a precaution. Failure to do this will result in blockage of the tensioning roller and consequently, damage or breakage of the belt.

How do we proceed:

- Disassemble the foremost protective cover from the left side of the machine (Read § 15.1)
- Turn loose the centre bolt (M14) from the tensioning roller, hold the nut against the direction of rotation on the back side of the tensioning roller's holder. (spanner size 19)



- 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.
- If the tread exhibits no severe wear and tear, then you should only replace the bearings.

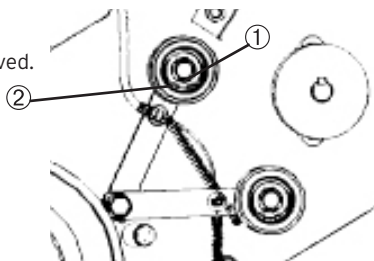
- Since this tensioning roller needs to operate two belts, two bearings are provided for stability.
- On the front of the roller, you will notice a safety clip, which secures those bearings in the compartment. Using a special tong, you will be able to remove the safety clip.
- Using an axle and a hammer, 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 Centre under stock no.
- Press the new bearings into the compartment equally. For this, press on the outer encasing of the bearing, and make sure that the dirt seal is not damaged by this.
- 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. (spanner size)
- Remount the black cover plate (read § 15.1)

Tensioning rollers of the roller drive

The belts of the roller drive rotate more slowly, which puts less pressure on these four tensioning rollers. These rollers are created out of aluminium. Slippage of the belt on the roller due to a rigidly operating bearing, however, results in immediate wear and tear on the tread. In order to prevent consequential damage in this case, the tensioning rollers will also have to undergo regular inspection.

How do we proceed:

- Disassemble the rearmost belt cover on both sides of the machine
- Check the tread of the roller. If you notice any wear and tear, then the entire roller will need to be replaced immediately. (Stock no.: ...)
- If the tread is still OK, use your hand to turn the tensioning roller to see how much looseness or rigidity that the bearing has. If there is any looseness detected in the sideways direction or if the ball joints vibrate or make cracking noises upon rotating, then the bearings will need to be replaced.
- Spray some rust solvent on the bearing axles and let it sit for a while. This will let the bearing slide off more easily from the axle.
- Using a special tong, take off the safety clip (1) from the axle, and slide the bearing off of the axle.
- The outermost safety clip (2) secures the bearing in the roller. Using a special tong, the safety clip can be removed.



- Using a pin punch and a hammer, tap the bearing evenly from the roller.
- The new bearing can be ordered from an authorised ELIET Service Centre
- Apply an even amount of pressure to the new bearing up to the end of the piston rod of the roller.
- Put the safety clip back into the groove of the tension roller.
- Next mount the roller back onto the axle of the tensioning roller and secure this using the safety clip.
- When all tensioning rollers have been inspected, replaced, and mounted in this manner, then the protective covers can be put back on.

11.4.6 Chain tightening

The DZC 550 has one chain drive, that being the chain that powers the roller in the seed reservoir as soon as the machine begins moving.

- Its capacity and RPM are very limited, hence the choice for a single (simplex) chain.
- This chain may turn forwards and backwards, depending on the direction in which the machine is driving. A chain tensioner with a double function has been provided to accommodate this feature.



Caution :

Never tighten the chain too tightly. Too much driving capacity would be required as a result, leading to extra wear of the chain and sprockets. Furthermore, a high radial tension can harm cap seals and bearings.



For your information :

When checking the chain tension, also check the chain and the sprocket for extensive wear. If the teeth are worn the sprockets and chain must be replaced. Visit your authorised ELIET dealer for assistance.



For your information :

Use this maintenance to lubricate the chain (read § 11.4.2.3).



Caution :

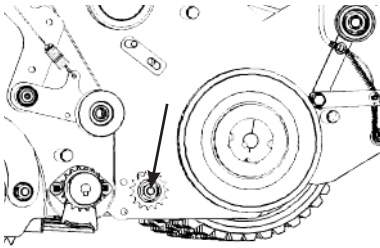
Chain tightening must be done with the motor switched off.



Caution

Always wear suitable clothing for performing this type of maintenance.

- The chain is subject to loss of elasticity after time and it will start to hang loose, with a risk of jumping off the gear under heavy strain. If you notice that the chain is loose when performing lubrication maintenance, then it will require tightening.
- Disassemble the foremost belt cover on the left side of the machine
- The easiest way to tighten up the belt is to lift up the centre sprocket.
- Unfasten the nut (M10) holding the sprocket. Use a 17 mm ring spanner.



- Lift the sprocket and tighten it completely enough.
- Over-tightening the chain can lead to accelerated wear of the bearings and the chain.
- Carefully replace the protective cover and fasten it.

11.4.7 Replacing chains and gears.

If the teeth are worn the sprockets and chain must be replaced. Visit your authorised ELIET dealer for assistance.

11.4.8 Checking the blades



Caution :

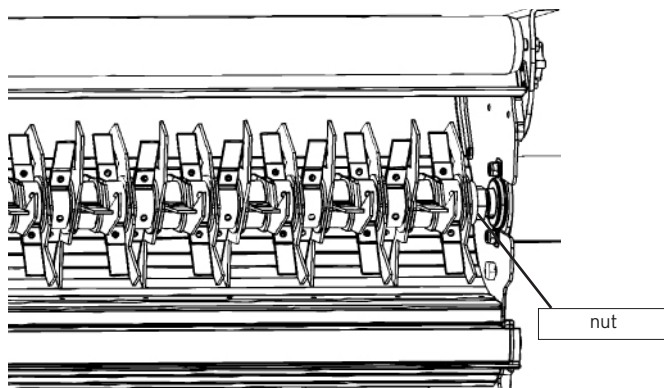
When performing this type of maintenance, always wear safety gloves and safety goggles.

- After each session, the blades must soon be subjected to an inspection.
- Before performing a blade inspection, make sure that the motor is always switched off and the spark plug cable is detached from the spark plug.
- Put the machine in transport mode.

- In order to get a clear view of the blade axle, the collector unit will need to be taken off and the deflector valve will need to be lifted as high as it can go (Read § 9.4.1.4).
- Manually twist on the blade axle and, then, check to see that there are no blades that have become bent. A blade may have been bent or twisted after impact with a hard object just below the surface.
- Bent blades do not always need replacing; rather, they can be bent back to their original shape.
- At the ELIET dealer, a special wring rod can be ordered for this:

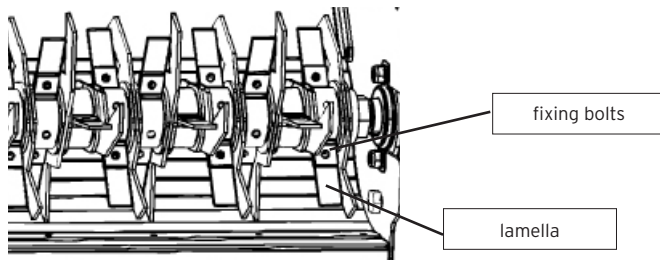


- The first thing to check is whether the blades show lateral play. For this, grab onto the blade using a tong and move it sideways. You should not notice any looseness in the blade. If this is the case, then you should do the following:
 - o On the right side of the blade row (seen from down the front), there is a large nut, which is for securing the blade and inner bushings.
 - o Hold the blades and twist in this nut further in a clockwise fashion (spanner size 31)



- o If you cannot tighten the nut any more, and there is still some looseness present, this means that the nut has reached the end of the threaded part. In that case, a thickness ring should be placed between the nut and the first blade (order the thickness plates from your authorised ELIET dealer)
- o For this, the blade axle will need to be disassembled (read § 11.4.9.)
- o Repeat the procedure described above until the blade assembly exhibits no more looseness.

- You should rotate the blade axle and check whether all lamella finishing wheels mounted in between the blades are still there and are still securely mounted. Tighten the fixing bolts M6 from the flap holder some more if needed (spanner size 10)



- The normal length of the blade is mm. Blades worn down by two-thirds cannot reach the desired groove depth and must be replaced (read §11.4.9).
- If the brush flaps are worn, then you will need to replace them. A new set of flaps can be ordered from your authorised ELIET dealer.



For your information:

This check is a good opportunity to clean the blade compartment.

11.4.9 Replacing the blades

- The blade axis is built in at the front of the machine with bearings on either side. On the left side, these are driven by a two belts.
- In order to replace the blades, the blade axis must be taken apart.



Caution :

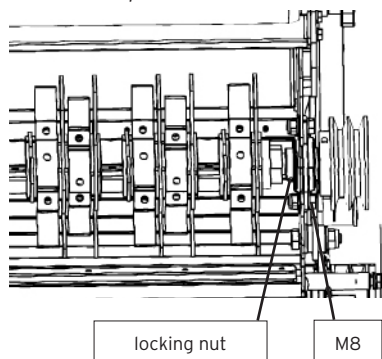
Replacing blades must always be done with the motor switched off. Carefully pull off the cap of the spark plug.



Caution :

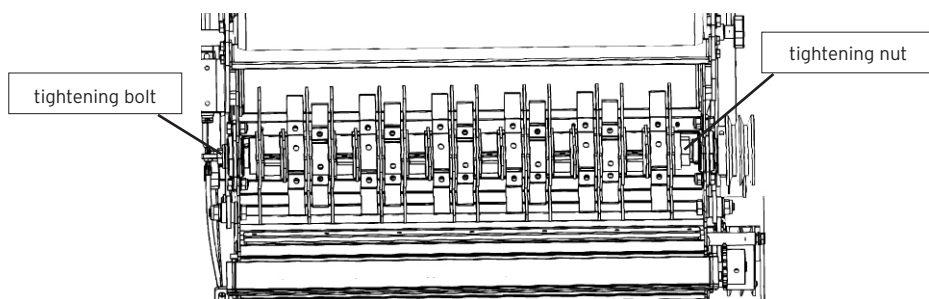
Always wear suitable clothing for performing this type of maintenance.

- Take off the front of the left belt cover so that you will be able to cover the drive belt in front of the blade axle (read § 15.1).
- If the drive belts are decoupled, then the belts on the pulley of the blade axle can be easily covered.
- Now you should disassemble the bearings so that the entire blade axle can be taken out of the blade compartment.

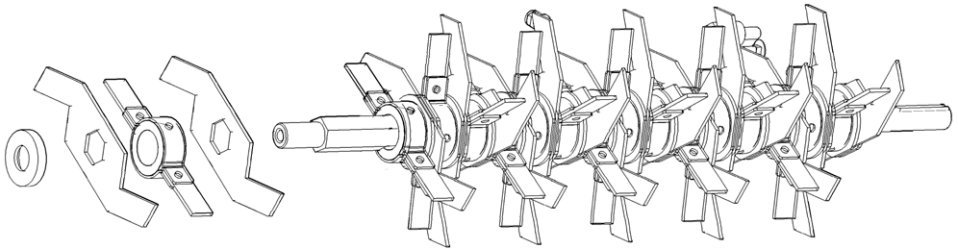


- There are two small locking nuts in the bearing bushing that can be unfastened with a 2.5 mm internal hex key. This is used for putting the bearings loosely on the axle so that they can now be unscrewed.
- On both sides, twist out the two fixing bolts (M8) completely from the bearing flanges (spanner size 13mm).

- Now that the bearings are loose, the blade axle can be slid out from the encasing.
- Once the blade axle is free, the left bearing (seen from along the underside) will need to be disassembled. Proceed by twisting off the central tightening bolt (M10) (spanner size 17 mm) completely.
- The blade axis itself is constructed as a pike with a string of blades and intermediate rings on it.
- Now all the blades and intermediate bushings can be slid from the axle.
- Check that the hexagonal axle does not show signs of wear (worn down by the blades).
- Sand down the blade axle somewhat (fine sanding paper P100) to remove rust, dirt etc. and to ensure that new elements can slide on smoothly.
- A new blade set can be ordered from an authorised ELIET dealer.
- Turn the large tightening nut (spanner 31) on the right side a few times to the right (counter-clockwise)



- Now slide the new blades on the axle, starting with a blade, inner bushing, blade, inner bushing, etc. Follow the assembly diagram in the drawing below.



Caution :

It is of vital importance to strictly follow the instructions for constructing the blade axle. The seed funnels are in line with the blades to ensure that the seed is deposited in the grooves. Wrong blade assembly will cause the seed to fall beside the grooves, making the operation with the machine quite useless.

- After mounting all the blades and inner bushings, the last thing done is the bearing shield, flanges, and bearing are mounted.
- Secure everything where it is supposed to be using the M10 bolt, which rotates into the axle end (spanner size 17).
- Now rotate in the brush flaps on the intermediate rings so that these are always flush with the adjacent blade.
- Now, you should tighten the entire blade assembly firmly so that the looseness between all the components is gone. For this, tighten on the large nut on the right side firmly against the blades (spanner size 31).
- If the blade assembly cannot be tightened up enough, because of the nut having already reached the end of the thread, then you will need to put on several thickness rings on the right hand side before re-tightening.
- After that, replace the blade axis into the compartment. Ensure that the bearings are installed without tension.
- Only when the blade axle spins around flexibly should you screw in the two set screws again on each side in the bearing bushing on the axle (internal hex key 2.5 mm)
- Remount the belt and replace the protective belt cover.
- Readjust the depth setting. (Read § 9.4.1.2)

11.4.10 Inspecting vibrator reeds (optional)

The purpose of the vibrator reeds (optional) is to brush the scattered seed in the grooves. For one reason or another, a reed can become damaged or bent, or a foreign object can become lodged between the reeds. These malformations can cause damage to the lawn on the one hand, and on the other hand, can end up causing seed to be scattered next to the grooves, as opposed to in them.



Caution :

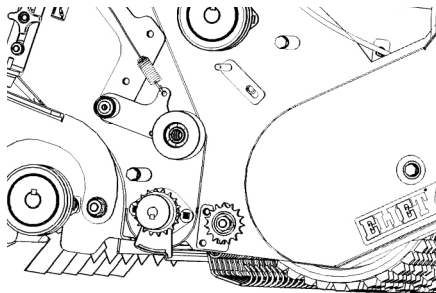
Replacing vibrator reeds must always be done with the motor switched off. Carefully pull off the cap of the spark plug.



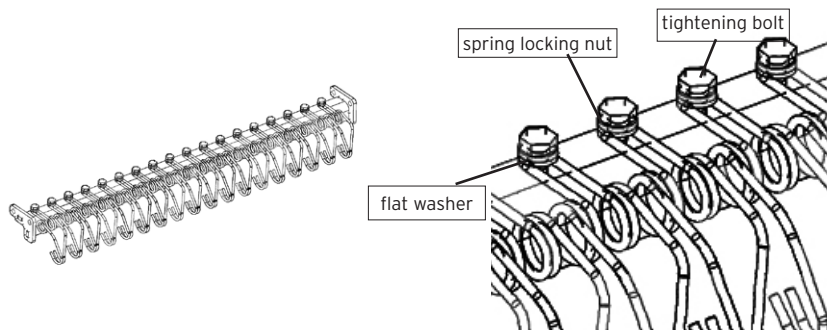
Caution :

Always wear suitable clothing for performing this type of maintenance.

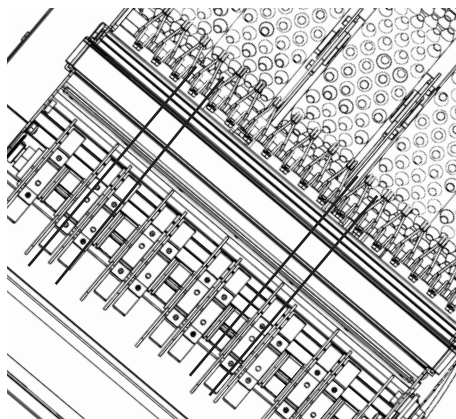
- Before cleaning or replacing a reed, it is recommended to disassemble the entire vibrator system. This makes everything better accessible.
- Disassemble the protective belt cover on the left side of the machine (read § 15.1).
- Remove the two fixing bolts (M8x16, spanner size 13) with corresponding flat washers and spring locking nuts on both sides of the machine.



- Take out the vibrator system from under the machine.
- Take that opportunity to clean off all of the parts and re-tighten the tightening bolts as needed.
- Bent vibrator reeds do not always need replacing; rather, they can be bent back to their original shape.
- A broken reed can be dismantled by removing the tightening bolt (M6, spanner 10) with the flat washer and spring locking nut.



- Remount everything back onto the machine using the two fixing bolts (M8x16, spanner 13) with corresponding flat washers and spring locking nuts on both sides of the machine.
- Check whether the vibrator reeds are in line with the seed funnels and blades.



Caution :

Be cautious when operating in reverse and going over a curb or other obstacle. The reeds can become damaged by this. Also tilt back the machine when going over a hump or curb.

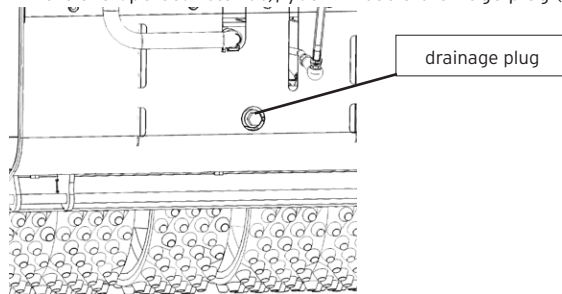
11.4.11 Checking hydrostat levels

- Make sure that the machine is sitting on flat ground and that the motor is switched off.
- The level can be read from the point indicated on the hydrostat oil reservoir.
- It is recommended to fill this up to just underneath the maximum level.

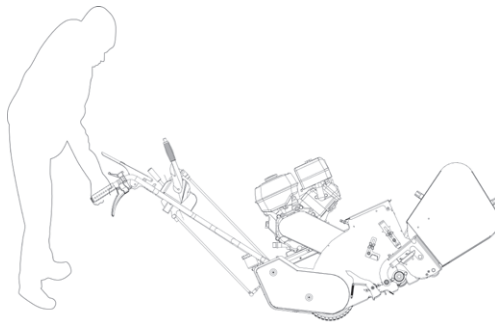
11.4.12 Changing hydrostatic oil

The hydrostatic circuit is a closed system, fully shielded against dirt. Despite these provisions, we recommend to change the oil after 500 hours of operation. For this, proceed as follows:

- Make sure that the machine is sitting on flat ground and that the motor is switched off.
- Open the hydrostatic oil reservoir.
- On the back side (from where the operator stands), you will see a drainage plug (spanner 17) for the hydrostat.



- Have a two litre collection reservoir ready before unscrewing the plug.
- Now screw loose in the drainage plug without unscrewing it completely. Use a 17 mm wrench.
- Now push back on the steering of the machine so that it tilts backwards over the roller wheels. Press the steering completely to the ground and hold it in place.



- Put the receptacle behind the machine and twist out the drainage plug completely.
- Empty the full contents (approx. 1.1 L) from the hydrostat. Make sure that all oil is properly collected in the receptacle.
- Tilt the machine forward again.
- Twist in the plug back onto the drain and re-tighten it

**Caution :**

do not tighten too much so as to avoid damaging the hydrostat

- Wipe away any spilled oil with a clean cloth.
- Fill up the hydrostat oil reservoir (TYPE) halfway.
- Try pulling on the motor's starter cord a few times. This forces the inner workings of the hydrostat pump to become active, and all air in the pump is forced out so that it can be filled with oil.

**Caution :**

Before operating the starter cord, check to be sure that the start knob of the motor is in the OFF position!

- Whilst operating the starter cord, you will gradually be filling up the reservoir to the maximum level. If the oil levels are no longer changing, then and only then should the motor be started (read § 9.5).
- Let the motor run for two minutes.
- Add more to the reservoir up to the maximum level.
- Re-close the reservoir.

**For your information :**

During operation, the oil level of the hydrostat should be regularly checked.

**Warning:**

Oil shortage in the hydrostatic pump inevitably causes severe damage. (This type of defect is not covered under warranty).

Respect the environment:

bring the oil to an authorised collection point for expert processing or recycling. Never pour oil down the drain.

12. Storing the machine



When storing the machine for an extended period, we recommend that you follow the steps below:

- Clean the entire machine thoroughly. (Read § 9.7 Cleaning the machine on page 46.)
- Carry out a full service (see § 11.2 Maintenance schedule on page <?>).
- Check all nuts and bolts and tighten them where necessary. Most bolts require the use of two spanners of 10, 13, 14, 17 or 19 mm and wrenches 4, 5 or 6.
- Empty the fuel tank either by running the engine until the machine runs out of fuel, or by using a siphon to pump the petrol back into the jerry can (read the safety instructions under § 9.4 Preparing the machine on page 29)
- Remove the spark plug (see § 11.3.5 Checking or replacing spark plug on page 67). Spray a little penetrating oil on the basis of MoS₂ into the cylinder cavity. 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 dry storage area, away from possible rain. If necessary, cover it with canvas.
- If the machine is stored outdoors, it must be properly covered with canvas. Avoid direct precipitation on the machine. ELIET highly recommends a sheltered storage place.

13. Equipment specifications

DZC 550

Chassis	Steel 5 mm
Measurements	190 x 725 x 1040 mm
Paint	Epoxipolyester
Weight	241 kg
Engine	Honda GX 270
Power	9 HP
Type engine	Petrol
Operations width	580 mm
Number of blades	18
Type of blades	Permanently sharp blades™
Blade spacing	25 mm
Depth adjustment	0 à -25 mm
Discharge	at the front
Clutch	Belt
Transmission	Belt
Seed hopper capacity	40L
Seedoutput adjustment	0 tot 200 gr/m ²
Roller transmission	Hydraustatic
Driving speed	proportionally adjustable (L/R)
	4 km/h < 0 > 4 km/h

14. EC Declaration of Conformity



Machine: **Overseeder**
Model: **ELIET DZC 550**
Type: **MA 016 021 207**

This machine has been designed and manufactured to comply with the following European CE regulations:

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. In this knowledge, the necessary steps have been taken in line with Machine Directive 2006/42/EG in order to ensure absolute operator safety for the operator, when the machine is used correctly.

The sound power level and the guaranteed sound power level have been determined in accordance with the measurements in European directive 2000/14/EG annex III and based on certain measurement instructions of EN 13684..

Sound power level Lw(A) : 98dB(A)

Guaranteed sound power level Lw(A) : 99 dB(A)

Date : 01/01/2011

Signature :

A handwritten signature in black ink, appearing to read 'Frederic LIETAER'. The signature is stylized and written over a horizontal line.

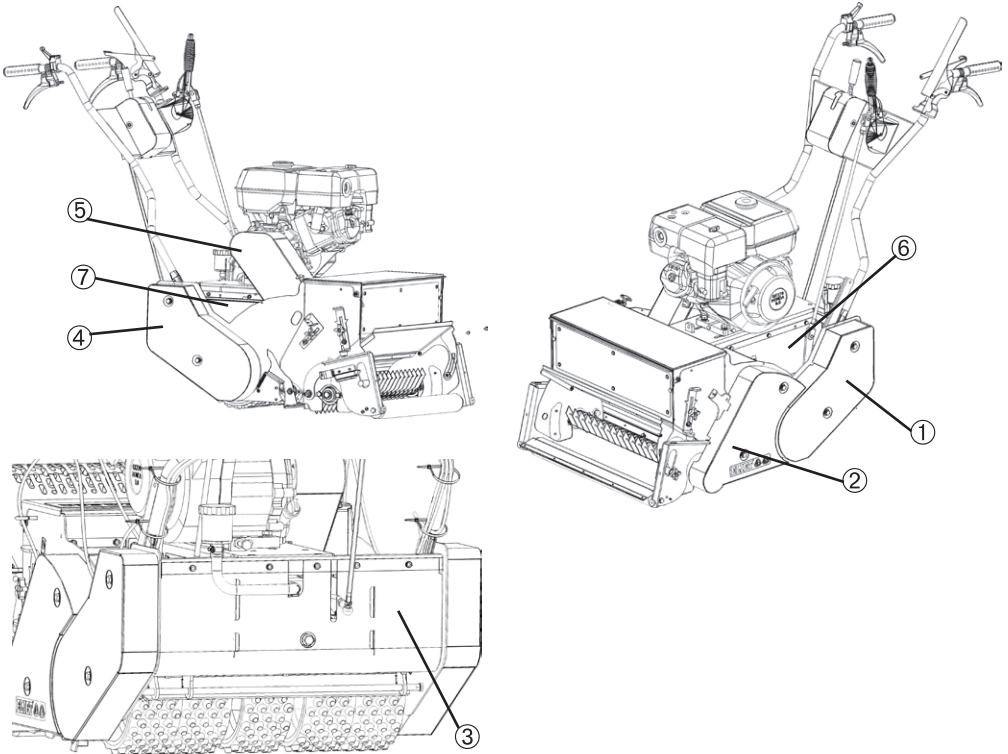
Frederic LIETAER
Managing director ELIET EUROPE NV
date of birth: 02/01/1975

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.be

15. Annexes

15.1 Removing the protective covers

The machine has eight protective covers.



1. **Front, left belt cover** : covers the belt drive to the blade axle
2. **Back, left belt cover** : covers the belt drive to the left roller and chain drive to the seed reservoir
3. **Large rear plate** : covers the hydrostat and outer axles for the roller drive
4. **Right belt cover** : covers the belt drive to the right roller
5. **Belt cover on the motor** : covers the belt transmission from the motor to the mitre gearbox.
6. **Left plate shield, middle console** : covers the mitre gearbox to the hydrostat
7. **Right plate shield, middle console** : covers the mitre gearbox to the hydrostat
8. **Plate shield for the drive axle** : covers the drive axle of the blade drive

- 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:

**Caution :**

Removing protective covers is considered to be maintenance. Consequently, the motor must be turned off and appropriate clothing must be worn.

**Caution :**

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 motor or any drive with any protective cover removed.

**Caution :**

Anyone who removes a protective cover acknowledges that he /she is creating a potential hazard and, thus, is responsible for guaranteeing his / her own safety and that of others in these situations by removing the starter key from the lock to avoid that others could start the machine against his will.

**Caution :**

Make sure the cables are not jammed between the chassis and the protective caps before replacing the caps.

15.2 Hazard analysis

Please find below a list of hazards and risks connected with transportation or operation of this overseeder. Take good notice of these dangers and avoid risks by following the instructions in the manual. Beware that risks are not limited to the operator: bystanders can be exposed as well. Ensure that bystanders are always kept at a safe distance.

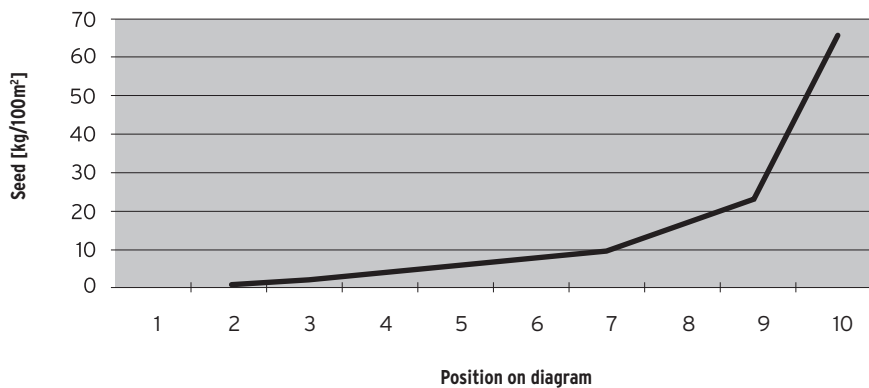
- Danger of flying debris during overseeding activities.
- Injuries from flying debris from the outlet while the machine is being used without a collector.
- Injuries from flying debris while lifting the machine into transport mode.
- Bruises or injuries when the machine is lowered, namely at the transfer point between transport mode and work mode.
- Danger of cuts to the feet when engaging the blades with the machine locked in transport mode.
- Injuries from contact with the blades when reaching under the machine.
- Injuries from contact with the blades during deblocking, maintenance or cleaning activities.
- Squeezing or jamming when the seed reservoir lid slams shut.
- Reaching into the rotating drum in the seed reservoir introduces the risk of fractured or bruised fingers.
- Reaching into chain drives when removing chain covers introduces the risk of fractured, entangled or severed fingers or limbs.
- Reaching into belt drives when removing belt covers introduces the risk of fractured, entangled or severed fingers or limbs.
- Spraining of feet or knee joints when lower limbs get stuck under the traction rollers.
- Spraining of feet or knee joints when lower limbs get stuck under the swivel caster or anti-scalping roller.
- There is the risk of bruising or becoming wedged between the handlebars and any obstacle whilst moving in reverse or changing direction.
- Injuries caused by the machine toppling over as a result of unsafe transport.
- Physical injury can occur when traversing a terrain that cannot support the weight of the machine.
- Heat exhaust or heat from the engine can cause scorching.
- Rubbish build-up around the exhaust or poor cleansing of the engine creates a fire hazard.
- Petrol spills also create a fire hazard.
- Heavy inhalation of exhaust fumes can induce intoxication.
- Air passages and the lungs are prone to irritation from breathing in dust particles produced during operation.
- Hearing loss as a result of not wearing the proper ear plugs or hearing protection during operation.
- Nerve damage or rheumatic disease can develop when exposed to the jarring for too long, without pausing for breaks.
- Back problems caused by lifting the machine in an irresponsible way.
- Risk of perforation of the skin or senses by the oil jet when a hydraulic component breaks.
- ...

The list is not exhaustive and is only provided as information in relation to the operator's safety.

15.3 Seeding diagram

POSITION ON DIAGRAM	SEED/100M ² [KG/100M ²]
1	0
2	0
3	0,39
4	1,55
5	4
6	7
7	10
8	16
9	23
10	65

Overseeder DZC550



15.4 List with torque values

BOLT HEAD ACCORDING TO DIN 931, DIN 912, ...

strongness thread		Strenght (Nm)	
		8.8	10.9
Normal thread	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 thread	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 factor $\mu = 0,14$)

15.5 Warranty conditions

Dear Customer,

We thank you for purchasing an ELIET product. Congratulations on your purchase of this machine which is sure to meet your expectations and needs over the coming years. At Eliet, we do everything to ensure that our products function correctly. That is why your product qualifies for a two year guarantee.

What is warranty ?

At Eliet, we have strict quality rules on designing and manufacturing products. The priorities given by these rules are to guarantee a long service life and permanent safety. That is why at Eliet, we are willing to repair at no charge hidden defects or faults during the whole run-in period (aka the warranty period), provided the prescribed procedure is followed.

Warranty conditions

ELIET's warranty obligations for new machines is 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 of private use.
- after twelve months or 100 running hours of rental use.
- after twelve months or 100 running hours in semi-professional or in professional use.

To be eligible to obtain warranty the customer is invited to register the newly purchased machine with ELIET. You should complete the registration card online on Eliet's website : **www.eliet.eu**.

If you don't have access to the Internet, please complete the attached registration card in its entirety and return it to ELIET.

II. What is covered by the warranty ?

- Wear items are not covered by the warranty conditions : (such as blades, bearings, belts, chains, gearwheels, tyres, bulbs, fuses, etc).
- If failures are found to be caused by improper use, neglect or consequential damages by an external source (fall, foreign objects, accident).
- If failures are found to be caused by improper maintenance of the machine, that is not in accordance with the prescribed periodic maintenance.
- When a defect is caused by improper repair made by anyone other than an authorized ELIET dealer or after using not genuine Eliet service parts.
- When the defect is caused by making improper changes to the original design of the machine.
- When the fault develops when the machine has been used not in accordance with the instructions contained within this manual.
- When the prescribed warranty procedure has not been adhered to or when the warranty

period has expired.

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

III. Procedure

- **Step 1 :** On the date of purchase, the customer should register his/her purchase online by completing the registration card at www.elieta.eu. In addition, the enclosed registration card should be completed in its entirety on the day of purchase. The first part of the form should be returned to ELIET within one month. The customer should 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 becoming apparent, the customer shall have this verified by the authorized ELIET dealer. If the dealer feels that there is a factory defect, the dealer may invoke the warranty, under the terms specified.
- **Step 3 :** Every warranty application must be accompanied by a fully completed official application form. Copies of this warranty application are available to dealers at ELIET or even at an importer/agent.
- **Step 4 :** The dealer then orders the parts needed to perform the repairs. Next, the dealer faxes the order form together with the completed warranty form and a copy of the registration card.
- **Step 5 :** The warranty form should be stapled to the purchase invoice and mailed to ELIET or an importer/agent of ELIET.
- **Step 6 :** ELIET will send the parts ordered to the dealer under the regular delivery and payment conditions.
- **Step 7 :** The defective part will be examined by the technical department first prior to approving or rejecting the warranty. ELIET reserve the right to solely decide whether or not the customer has complied with the conditions for the validity of this guarantee, i.e. 1 year or 2 years. Faulty components shall become the property of ELIET.
- **Step 8 :** When a warranty claim is found to be valid, ELIET will credit the warranty parts. Customers shall never be entitled to apply for a refund of labour costs.

IV. In case of damage caused by transport

- All goods are supplied ex factory. Transport risks are borne by the customer. It follows, that ELIET highly recommend to check the goods for damage on arrival.
- Any damage found should be stated on the delivery form before signing. Make sure the driver of the haulage company puts his signature next to the damage on your copy.
- In the absence of a written and signed declaration on the delivery form, the insurance of the haulage company will not accept any liability.
- Damages can be claimed from the hauler using a copy of the delivery form and a covering letter stating your complaint.
- The damaged machine should be kept in its original condition until the hauler's insurer has performed any examination.

