

MULTI CARRIER

HXF 2302



HANDBOOK

UK

1th edition 2015

GREENTEC

Cutting Edge Technology





GreenTec HXF 2302

Manual

1. Edition – May 2015

Please ensure that this manual is handed to the operator before using the machine for the first time. The operator must fully understand the contents of this manual before using this machine. (If the machine is resold the Manual must be given to the new owner.)

The information contained in this manual is correct at the time of publication. However, in the course of constant development, changes in specification are inevitable. Should you find the information given in this book different to the machine it relates to please contact the “After Sales Department” for advice



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Introduction

Dear customer!

Your new Greentec machine is constructed with background in more than 20 years experience with tractor mounted machines to maintenance of green areas. This machine is produced by the latest technology and recognized safety regulations, standards and regulations.

We want to make a product available in such a way, that neither the use of the machine during transportation or maintenance of the machine causes any damage or misunderstandings.

This manual contains information and instructions that are important and useful for maintaining your Greentec machine's reliability, dependability and value. Please read this manual carefully as it will familiarize you with the installation, use, care and maintenance. Pay particular attention to the instructions regarding safety.

You are welcome to visit our website www.greentec.eu - where the login via the dealer's access gives you the latest updates on instructional and part books on our entire product range. The password for dealer log-in: PUBLISHER

We hope, you will be pleased with your new Greentec machine.

Best regards,

John Christensen
Sales Director Greentec A/S



Greentec's vision is to develop and sell quality machines for the maintenance of green areas, including in agriculture, in industry, at airports and in the local sector. Through innovative product development, we will strive to become a leader in our field.

All machines are developed in a simple and functional design in close cooperation with dealers and end users. It is our goal to cover every need in the market segment with preferably 2 different solutions. In-depth analysis of requirements and serious advice to the customer is offered the best solution, where individual needs can be met through the modularity of the product program. Our goal is also to offer the best possible after sales service, and a quick and efficient spare parts supply.



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Useful information

Before using the machine for the first time, it's the seller's responsibility that the buyer is given this manual, and the seller is sure, that the buyer fully understands the manual's contents. If the machine is resold, the manual must be transferred to the new owner.

Please fill out the list below to ensure that the necessary information is at hand when ordering spare parts etc.

Serial No	<input type="text"/>
Delivery date	<input type="text"/>
Dealer	<input type="text"/>
	<input type="text"/>
	<input type="text"/>
Tlf./ fax	<input type="text"/>



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General Information

Read this manual before fitting or operating the machine or accessory. Whenever any doubt exists contact your local dealer or the GreenTec Service Department for assistance.

Only use 'Genuine GreenTec Parts' on GreenTec machinery and equipment.

DEFINITIONS: *The following definitions apply throughout this manual;*

▲ DANGER

DANGER: Alerts to a hazardous situation which will result in death or serious injury if not observed carefully.

▲ WARNING

WARNING: Alerts to a hazardous situation which could result in death or serious injury if not observed carefully.

▲ CAUTION

CAUTION: Alerts to a hazardous situation which could result in damage to the machine and/or equipment if not observed carefully.

NOTICE

NOTICE: Specific or general information considered important or useful to emphasize.

LEFT HAND (LH) & RIGHT HAND (RH): These terms are applicable to the machine when fitted to the tractor and viewed from the rear; these terms also apply to tractor references.

SERIAL PLATE

All machines are equipped with a serial number plate containing important information relating to the machine including a unique serial number used for identification purposes.

Note: Images in this manual are provided for instruction and informational purposes only and may not show components in their entirety. In certain instances images may appear different to the actual machine; where this occurs the general procedure will be basically the same.



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Merkurvej 25, DK-6000 Kolding, Denmark

CE Declaration of Conformity

Adapted EEC directive
EG Guideline 2006/42/EF, 89/392/EEC & 98/37/EC

We, **GreenTec A/S**, Merkurvej 25, 6000 Kolding, hereby declare that in terms of its design, method of construction and our execution thereof, the item of machinery described below complies with the basic health and safety regulations of the respective EU Directives. The Machinery Directive is supported by the following harmonized standards:

Product: GreenTec HXF 2302

Product code: 9992302

Serial no:

Type: Armsystem



- DS/EN ISO 12100 3rd edition 2011. Safety of Machinery – General principles for design – Risk assessment and risk reduction.
- DS/EN 953+A1 4th edition 2010. Safety of Machinery – Guards-General requirements for the design and construction of fixed and movable guards.
- DS/EN ISO 4413 1th edition 2010. Hydraulic fluid power – General rules and safety requirements for systems and their components.

The EC Declaration only applies if the machine stated above is used in accordance with the operating instructions.

On behalf of GreenTec A/S

Date: 24.11.2014

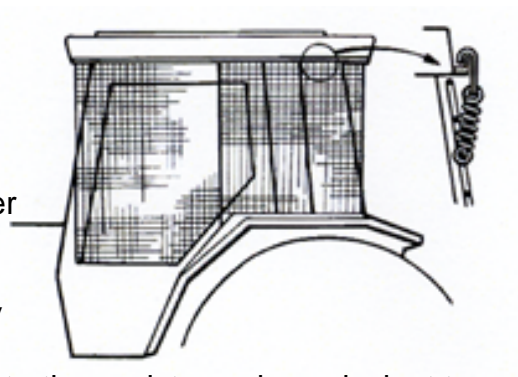
Signature: _____

John Christensen Salgsdirektør



Vehicle / tractor Preparation

We recommend vehicles are fitted with cabs using 'safety glass' windows and protective guarding when used with our machines. Fit Operator Guard (See drawing) using the hooks provided. Shape the mesh to cover all vulnerable areas. The driver must be looking through mesh and/or polycarbonate glazing when viewing the working tool in any working position - unless the vehicle/ cab



manufacturer can demonstrate that the penetration resistance is equivalent to, or higher than, that provided by mesh/polycarbonate glazing. If the tractor has a roll bar only, a frame must be made to carry both mesh and polycarbonate glazing. The operator should also use personal protective equipment to reduce the risk of serious injury such as; eye protection (mesh visor to EN1731 or safety glasses to EN166), hearing protection to EN352, safety helmet to EN297, gloves and high visibility clothing.

Vehicle Ballast

It is imperative when attaching 'third-party' equipment to a vehicle that the maximum possible stability of the machine and vehicle combination is achieved – this can be accomplished by the utilisation of 'ballast' in order to counter-balance the additional equipment added.

Front weights

May be required for rear mounted machines to place 15% of total outfit weight on the front axle for stable transport on the road and to reduce 'crabbing' due to the drag of the cutting unit when working on the ground.

Rear weights

May be required to maintain a reasonable amount of rear axle load on the opposite wheel from the arms when in work; for normal off-ground work i.e. hedge cutting this should be 20% of rear axle weight or more for adequate control, and for ground work i.e. verge mowing with experienced operators, this can be reduced to 10%.

All factors must be addressed in order to match the type and nature of the equipment added to the circumstances under which it will be used – in the instance of Power Arm hedge cutters it must be remembered that the machines centre of gravity during work will be constantly moving and will differ from that during transport mode, therefore balance becomes critical.



Factors that affect stability

- Centre of gravity of the tractor/machine combination.
- Geometric conditions, e.g. position of the cutting head and ballast.
- Weight, track width and wheelbase of the tractor.
- Acceleration, braking, turning and the relative position of the cutting head during these operations.
- Ground conditions, e.g. slope, grip, load capability of the soil/surface.
- Rigidity of implement mounting.

Suggestions to increase stability

- Increasing rear wheel track; a vehicle with a wider wheel track is more stable.
- Ballasting the wheel; it is preferable to use external weights but liquid can be added to around 75% of the tyre volume – water with anti-freeze or the heavier Calcium Chloride alternative can be used.
- Addition of weights – care should be taken in selecting the location of the weights to ensure they are added to a position that offers the greatest advantage.
- Front axle locking (check with tractor manufacturer).

NOTE: The advice above is offered as a guide for stability only and is not a guide to vehicle strength. It is recommended that you consult your vehicle manufacturer or local dealer to obtain specific advice on this subject, additionally advice should be sought from a tyre specialist with regard to tyre pressures and ratings suitable for the type and nature of the machine you intend to fit.



Safety Stickers



Warning
Avoid fluid escaping under pressure. Consult technical manual for service procedures.



Warning
Stop engine and remove key before performing maintenance or repair work.



Warning
Danger – flying objects. Keep safe distance from the machine as long as the engine is



Warning
Check all nuts and bolts are tight every 8 hours – retighten if required.



Warning
Stay clear of rotating saw blades / knives.



Warning
Carefully read operator's manual before handling this machine. Observe instructions and safety rules when operating.



Warning
Do not remove / open guard when parts are rotating



Warning
The recommended oil flow has been adjusted by the manufacturer. Never exceed this.



Safety

This machine has the potential to be extremely dangerous - in the wrong hands it can kill or maim; it is therefore imperative that both owner and operator of the machine reads and understands the following section to ensure they are fully aware of the dangers that do, or may exist, and their responsibilities surrounding the use and operation of the machine. The operator of this machine is responsible not only for their own safety but equally for the safety of others who may come into the close proximity of the machine, as the owner you are responsible for both.

All operators must be fully competent in the use of this machine and also the machine to which it is attached and must read and understand the operation manuals for both machines before attempting to attach or operate this equipment.

When the machine is not in use it should be lowered to rest on the ground. In the event of any fault being detected with the machine's operation it must be stopped immediately and not used again until the fault has been corrected by a qualified technician.

Potential Dangers associated with the use of this machine

- ▲ Being hit by debris thrown by rotating components.
- ▲ Being hit by machine parts ejected through damage during use.
- ▲ Being caught on a rotating power take-off (PTO) shaft.
- ▲ Being caught in other moving parts i.e.: belts, pulleys and cutting heads.
- ▲ Electrocution from Overhead Power Lines (by contact with or 'flashover' from).
- ▲ Being hit by cutting heads or machine arms as they move.
- ▲ Becoming trapped between tractor and machine when hitching or unhitching.
- ▲ Tractor overbalancing when machine arm is extended.
- ▲ Injection of high-pressure oil from hydraulic hoses or couplings.
- ▲ Machine overbalancing when freestanding (out of use).
- ▲ Road traffic accidents due to collision or debris on the road.



Additional Safety Advice

Training

Operators need to be competent and fully capable of operating this machine in a safe and efficient way prior to attempting to use it in any public place. We advise therefore that the prospective operator make use of relevant training courses available such as those run by the Agricultural Training Board, Agricultural Colleges, Dealers and GreenTec.

Working in Public Places

When working in public places such as roadsides, consideration should be paid to others in the vicinity. Stop the machine immediately when pedestrians, cyclists and horse riders etc. pass. Restart only when they are at a distance that causes no risk to their safety.

Warning Signs

It is advisable that any working area be covered by suitable warning signs and statutory in public places. Signs should be highly visible and well placed in order to give clear advanced warning of the hazard. Contact the Department of Transport or your Local Highways Authority to obtain detailed information on this subject. The latter should be contacted prior to working on the public highway advising them of the time and location of the intended work asking what is required by way of signs and procedure. – ‘*Non-authorized placement of road signs may create offences under the Highways Act*’.

Suggested Warning Signs Required

‘Road works ahead’ warning sign with a supplementary ***‘Hedge cutting’*** plate. ***‘For 1 km’*** or appropriate shorter distance may be added to the plate. ***‘Road narrows’*** warning signs with supplementary ***‘Single file traffic’*** plate. White on blue ***‘Keep left’*** (*) arrow sign on rear of machine.

**** Note – this applies to EU Market machines where traffic passes to the left of a machine working in the same direction as the traffic flow. The direction, use and colour of the arrow sign will depend on the country of use and the Local Highway Authorities regulations in the locality.***



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Use of Warning Signs

- ▲ *On two-way roads one set of signs is needed facing traffic in each direction.*
- ▲ *Work should be within 1 km of the signs.*
- ▲ *Work only when visibility is good and at times of low risk e.g.: NOT during 'rush-hour'.*
- ▲ *Vehicles should have an amber-flashing beacon.*
- ▲ *Ideally, vehicles should be conspicuously coloured.*
- ▲ *Debris should be removed from the road and path as soon as practicable, and at regular intervals, wearing high visibility clothing and before removing the hazard warning signs.*
- ▲ *Collect all road signs promptly when the job is completed.*

Safety Gear: It is recommended that the following personal protective equipment is worn when operating and/or maintaining this machine; Coveralls, safety boots, safety glasses, hearing protection, safety helmet, protective gloves.



Although the information stated here covers a wide range of safety subjects it is impossible to predict every eventuality that can occur under differing circumstances whilst operating this machine. No advice given here can replace 'good common sense' and 'total awareness' at all times, but will go a long way towards the safe use of your GreenTec machine.



Before using this machine

Always:

- ⊗ Ensure the operator has read this handbook and has been trained to use the machine.
- ⊗ Ensure that the tractor meets the minimum weight recommendations of the machine manufacturer and that ballast is used if necessary.
- ⊗ Ensure all cab safety guards are in place and all tractor windows are closed. Never allow an inexperienced person to operate the machine without supervision. If tractor is without cabin then mount metal mesh or polycarbonate guards of suitable size and strength to protect the operator against thrown debris or parts
- ⊗ Wear ear defenders if operating without a quiet cab or with the cab windows open.
- ⊗ Inspect work area for wire, steel posts, large stones and other dangerous materials. If such items are found, remove them.
- ⊗ Work at a safe speed, taking into account terrain, passing vehicles and obstacles.
- ⊗ Never start or continue to work a machine if people are nearby or approaching - Stop and wait until they are at a safe distance before continuing. **WARNING:** Some cutting heads may continue to 'freewheel' for up to 20 seconds or more after being stopped.
- ⊗ Remove the ignition key, before leaving the cab.
- ⊗ Ensure that the saw or flail head is firmly on the ground, no weight is on the tractors hydraulics and blades / knives have stopped spinning, before leaving the tractor cab
- ⊗ Check that all safety guards are properly fitted, check there are no damaged or loose parts.
- ⊗ Beware of the danger of overhead power cables. The operator must be aware of the maximum height and reach of the machine when working under power cables. The minimum legal height for 11,000 and 22,000-volt cables is 5.2 metres from the ground. When fully extended, the machine may well exceed this height so extreme caution should be practised. For more information contact the Health and Safety Executive or your local power company.
- ⊗ Operate the blades at a speed between 3000-3200 rpm (depending on model).
- ⊗ Ensure that all warning labels are always visible and that they are not damaged, defaced or missing.
- ⊗ Follow the manufacturer's instructions for attachment and removal of machine from the tractor.



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Never:

- ⊗ Operate the machine until you have read and understood the relevant Handbook and are familiar with the controls.
- ⊗ Operate the machine with other people present, as it is possible for debris to be thrown from the saw blades in all directions.
- ⊗ Use a machine that is poorly maintained or has guards that are damaged or missing.
- ⊗ Allow an inexperienced person to operate the machine without supervision.
- ⊗ Use or fit a machine onto a tractor if it doesn't meet the manufacturer's specification.
- ⊗ Allow children to play on or around the machine at any time.
- ⊗ Attempt any maintenance or adjustment without first disengaging the pto/hydraulic pump, lowering the head to the ground, stopping the tractor engine and applying the tractor parking brake.
- ⊗ Stop the engine with the power take-off (PTO) engaged.
- ⊗ Transport with the power take-off (PTO) engaged.
- ⊗ Exceed maximum oil pressure of 250 bar in the hydraulic hoses.
- ⊗ Use a machine if the hydraulic system shows signs of damage.
- ⊗ Attempt to detect a hydraulic leak with your hand, use a piece of card.
- ⊗ Operate the tractor or any controls from any position other than from the driving seat.
- ⊗ Transport without the blade protection guards mounted.
- ⊗ Operate with saw blades/flails missing.
- ⊗ Operate with wire around the rotor/saw blade. Stop immediately.
- ⊗ Use the head at an angle, which may throw debris towards the cab.
- ⊗ Leave the cab without removing the ignition key.
- ⊗ Attempt to use the machine for any purpose other than that it was designed for.
- ⊗ Attempt any maintenance or adjustment without first disengaging the PTO, lowering the head to the ground, stopping the tractor engine and applying the tractor parking brake.
- ⊗ Enter the working area of the machine (risk of injury!).



Specifications

- Hydraulic anti collision AHS
- Range approx. 1,6 m from the centre of the Mini Loader
- Weight without tool 65 kg
- 180° manual folding arm system

HXF 2302	LRS 1402	HL 150-180	RI 60-80
Oil quantity	25 l/min	25 l/min	25 l/min
Max. oilpressure	200 bar	200 bar	200 bar
Max. leak oil pressure	0-1,5 bar		0-1,5 bar
Max. return pressure			
Tool speed	4000 rpm	200-400 rpm	2000 rpm
Suitable for	Hedge	Hedge	Grass
Branch size	5-100 mm	5-40 mm	Not suitable
Angles allowed	+ - 45° from 90°	+ - 45° from 90°	+15° -5° from 0°
Usable positions	Vertical	Vertical (*Horizontal)	Horizontal
Work area	140 cm	150 – 180 cm	60 – 80 cm
Weight	50 kg	60 – 64 kg	45 – 60 kg

*Horizontal cutting is possible. Debrée may "pile up" above the cutter.

Before starting work

Adjusting to work position

- Wear safety glasses and work gloves.
- Remove the transport bolt and turn the arm to work position. Mount the bolt in the ram. Remember the safety pin.
- Start the tool at low oil flow (low rpm). Let the tool warm up for a few minutes.
- Hedges: Adjust the HXF 2302 to **vertical** for hedge cutting and adjust to work position.
- Grass: Adjust the HXF 2302 to horizontal for grass cutting and raise/lower to work position.



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Too much back

Arm falls back too often

Vertical

Best work

Too much forward

Risk of machine failure



Tool start

- Wear safety glasses and work gloves.
- Choose low motor rpm.
- Make sure that the area surrounding the tool is secure.
- **Warm start** – Start the tool
- **Cold start** – never start at max rpm. Let the tool run unloaded for approx. 15 minutes to warm up the oil.
- Slowly increase the rpm until the proper oil flow is achieved.
- Never try to restart an overworked tool. Stop the tool and the machine engine. Remove the ignition key and engage the hand break. Only then is it safe to remove wedges and debris. Remember to wear safety glasses and work gloves.



Tool stop

- Reduce engine rpm to idle speed. Then stop the tool.
- Never increase or decrease the amount of oil too fast. This can cause long-term damage to the hydraulic system.
- When your work is finished: Stop the engine. Remove the ignition key and engage the handbrake. Remember to wear safety glasses and work gloves. Mount safety protection if fitted. Beware of sharp cutting parts!
- Remove the transport bolt and turn the arm to transport position. Mount the bolt in the ram. Remember the safety pin.
- Always show consideration to other road users.

Overhead power lines



Always pay attention to the overhead power lines. Between the electricity poles, there is always a risk of touching overhead lines. If in doubt - contact the local power station for instructions on safety distance.



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Mounting/Dismounting with HL or LRS tool

⚠ WARNING

Mounting the tool must be done at a plane and safe surface. Always pay close attention when mounting the tool to the machine; make sure that no persons are within range of the saw/blades, as these can cause injuries even when stationary. For safety reasons the saw/blade must always be fitted with the safety caps, and these should only be removed when starting the work.

⚠ DANGER

Never use the tool on an unstable or non suitable vehicle.

Mounting to an arm system or similar:

Tools can be mounted to the arm system with a Quickshift. GreenTec HXF 2302 is specially designed to fit onto Quadsaw LRS 1402, Cutter bar HL 150-180 and Rotary Mover RI-60-80.

HXF is a system designed to be mounted on tractors, telescopic loaders and compact loaders. It has a range of approx. 160 cm from the centre of the compact loader, a 180° manual folding system and hydraulic anti-collision. The total weight of the unit is 65 kg without tools. If necessary, ballast can be mounted on the vehicle or the arm system to ensure stability and balance during any work or working conditions.

1. Approach slowly. Adjust the angle to HXF. Mini loader and HFX are connected.



⚠ WARNING

Never use the tool with broken or missing blades/knives



⚠ WARNING

LRS 1402. Blades must be mounted in a downward cutting rotation only

2. After mounting, slowly raise the HFX



3. Tip the tool handle to 90°. Then mount hydraulic hoses and if fitted, electric cables
Dismounting is done in reverse order.





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Mounting/dismounting with RI-60 or 80

⚠ WARNING

Mounting the tool must be done at a plane and safe surface. Always pay close attention when mounting the tool to the machine; make sure that no persons are within range of the saw/blades, as these can cause injuries even when stationary.

⚠ DANGER

Never use the tool on an unstable or non suitable vehicle.

Mounting to an arm system or similar:

Tools can be mounted to the arm system with a Quickshift. GreenTec HXF 2302 is specially designed to fit onto Quadsaw LRS 1402, Cutter bar HL 150-180 and Rotary Mover RI-60-80.

HXF is a system designed to be mounted on tractors, telescopic loaders and compact loaders. It has a range of approx. 160 cm from the centre of the compact loader, a 180° manual folding system and hydraulic anti collision. The total weight of the unit is 65 kg without tools. If necessary, ballast can be mounted on the vehicle or the arm system to ensure stability and balance during any work or working conditions.

1. Approach slowly. Adjust the angle to HXF. Compact loader and HFX are connected.





2. After locking the compact loader and HFX together slowly raise. Dismount supporting leg.



3. Mount hydraulic hoses and if fitted electric cables. Dismounting is done in reverse order.

⚠ WARNING

Never use the tool with broken or missing blades/knives

Transport position with LRS 1402 or HL 150-180

1. Remove the bolt from the ram.





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-
2. Manually turn the arm 180° to work position.



Work position with LRS 1402 or HL 150-180

3. Mount the bolt to the cylinder. Remember the safety pin! Dismount transport protection from the cutting tool. The set is now ready for work. Always wear safety glasses if the mini loader is without cab!





Transport position with RI 60 or 80

1. Remove the bolt from the RI 80 anti collision safety.



2. Remove the bolt from the ram on the HXF 2302.





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2. Manually turn the arm to 150° or 180° into work position



Work position with RI 60 or 80

1. Mount the bolt to the cylinder. Remember the safety pin! The set is now ready for work. Always wear safety glasses if the compact loader is without cab!





Work position of the arm with various tools

180° with LRS 1402 and HL 150 to 180. (Possible with RI depending on the compact loader)



150° with RI 60 to 80





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Operation/Introduction

The arm system is used for cutting hedges, cutting branches and trees and for grass cutting around trees, lamp posts or similar.

LRS 1402 is used for cutting branches up to a max. diameter of 100mm, without the branches being torn. Branches with a diameter exceeding 40 mm must be cut one at a time.

Vertical cutting is allowed up to a 45 degree angle. Horizontal cutting is possible on hedges with a width up to 80 cm and a branch diameter up to 20 mm. Thicker branches might stop the blades and get stuck in the machine.

HL 150 to 180 is used for cutting branches up a max. diameter of 40 mm, without the branches being torn.

Vertical cutting is allowed up to a 45 degree angle. Horizontal cutting is possible on hedges with a width up to 70 cm and a branch diameter up to 15 mm. Thicker branches might stop the blades and get stuck in the machine.

LRS 1402 & HL 150 til 180. It is recommended that forward speed is kept to a minimum when starting work in order to retain the correct working speed of the blades. Set the angle of the cutter so it is positioned at right angles to the work and adjust the machine position so the branches meet the saw blades 'straight on'. Wherever possible try to keep the blades running vertical in relation to the direction of travel, this will help prevent them from 'distorting' during operations. Should small branches, debris or unwanted material get stuck in the blades the **machine and tractor must be switched off** and the starting key removed before attempting to clear the blockage. If necessary, remove the belt cover to gain better access to the blockage; replace cover immediately before starting or using the machine.



LRS 1402: Never run the machine without belt cover mounted.



LRS 1402: Great care must taken when attempting to clear debris from the blade and/or belt area of the machine; sharp components and numerous pinch risk points exist in these locations. Safety gloves and safety eyewear should be worn and wherever possible the use a suitable tool should be used to remove any debris to ensure hands and fingers are kept clear of any risk areas.



LRS 1402: Never use the machine as a stationary saw for making firewood.



RI 60 or 80 It is recommended that forward speed is kept to a minimum when starting work in order to retain the correct working speed of the blades. Set the angle of the cutter so it is positioned at right angles to the work and adjust the machine position so the branches meet the saw blades 'straight on'.

Wherever possible try to keep the blades running vertical in relation to the direction of travel, this will help prevent them from 'distorting' during operations.

Should small branches, debris or unwanted material get stuck in the blades the **machine and tractor must be switched off** and the starting key removed before attempting to clear the blockage. Use safety glasses and work gloves during work. If the tool is raised for any reasons it **MUST** be supported in a secure way.

⚠ WARNING

RI 60 or 80: Never use the tool with broken knives.

⚠ WARNING

RI 60 or 80: Great care must be taken when attempting to clear debris from the blade and/or belt area of the machine; sharp components and numerous pinch risk points exist in these locations. Safety gloves and safety eyewear should be worn and wherever possible a suitable tool should be used to remove any debris to ensure hands and fingers are kept clear of any risk areas.

⚠ DANGER

RI 60 or 80: Never use the tool for any other purposes than described in this manual.

⚠ DANGER

HXF 2302: Never use the machine as a crane.

When in charge of the machine always obey the following rules:

- Always inspect the work area prior to operation and remove any dangerous materials.
- Never operate the machine with persons or animals in close proximity.
- Ensure all cab guarding is in place and the tractor windows are kept shut.
- Only operate the machine at the correct blade speed.
- Never transport the machine without the blade protection guards fitted.
- Never approach the machine when it is running, always switch it off and stop the tractor.
- Always remove the vehicle ignition key before leaving the cab.
- Never use the machine to perform tasks it was not designed for.
- Always lower the machine to rest on the ground with blade protection guards fitted when the unit is parked up or not in use.



Driving recommendations with saw and hedge cutter

Starting and stopping the tool must always be done at the lowest PTO rpm.

LRS 1402 and HL 150-180: It is recommended to travel at a slow forward speed when starting work in order to obtain and keep the recommended rpm of the blades. Adjust the angle of the saw to approx 90 degrees in relation to the branches. If a thick branch is approaching the branch reflectors, the working height must be adjusted for the branch to hit the saw blades straight on.

Always ensure that the blades are running vertical related to the direction of the travel. This will prevent the blades from bending too much.

NOTICE

It might be an advantage to mount a skid at the bottom of the saw to prevent the saw blades from hitting the ground. (Optional)

The cutting angle is as std. a “top-link”, and can only be adjusted when the machine is stopped.

NOTICE

A hydraulically ram (option), can be mounted. Operate the ram in the required direction to set the desired cutting angle before starting work. The ram may be operated during work to make minor angling adjustments, but it is recommended to stop work before making major adjustments to the cutting angle.

⚠ DANGER

To prevent saw blades from blocking there is mounted a Branch deflector part no. 8141503, a Plastic-rail part no. 8148001 in the full length of the machine and a nylon wheel part no. 8146001 under the bottom saw blade to prevent saw blades from bending. If the saw blades still blocks, then stop the saw, stop the carrier, take out the ignition key, pull the handbrake, put your safety glasses and gloves on and remove the jammed piece of wood or plastic.



Driving recommendations with grass cutter

NOTICE

Starting and stopping the tool must always be done at the lowest PTO rpm.

RI 60 or 80: It is recommended to travel at a slow forward speed when starting work in order to obtain and keep the recommended rpm of the blades. Adjust the cutting angle in relation to the terrain. Ri 60 and 80 are built to cut horizontally; though it is possible to cut at a 15° angle away from the compact loader or 5° towards the compact loader. When cutting in a sloping terrain GreenTec recommends buying an extra Rubber flap.

Option: Rubber flap



If small branches or other unwanted material get stuck in the blades, the machine must be stopped and cleaned.

Always ensure that the blades are running vertical related to the direction of the travel. This will prevent the blades from bending too much.

NOTICE

Where possible always ensure that the blades are running vertical related to the direction of the travel. It might be an advantage to mount an extra rubber flap. (Optional)

The cutting angle is as std. a “top-link”, and can only be adjusted when the machine is stopped.

NOTICE

A hydraulically ram (option), can be mounted. Operate the ram in the required direction to set the desired cutting angle before starting work. The ram may be operated during work to make minor angling adjustments, but it is recommended to stop work before making major adjustments to the cutting angle.

⚠ DANGER

To prevent the knives from blocking they are mounted at a bushing and rotates freely. An anti-scalp plate is also std. and helps avoid the knives from hitting the ground. If the saw blades still blocks, then stop the saw, stop the carrier, take out the ignition key, pull the hand brake, put your safety glasses and gloves on and remove the jammed piece of wood or plastic.



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Storage

HXF is stored vertical or horizontal depending on which tool is mounted. If mounted with a RI tool it MUST be stored vertically. If mounted with a LRS or HL tool it MUST be stored horizontally. This also applies if no tools are mounted.

With RI-60 or 80



With LRS 1402 and HL 150-180



CAUTION

Great care must be taken when washing with high-pressure hoses, do not hold the water jet close to the paintwork. Use steam cleaners with caution; be sure to remove all detergents to avoid any discolouring or damage to paint. Grease all grease points until fresh grease shows. Slacken rotor drive belts (where fitted).

It is important where possible to store under cover to protect against rain and sunlight. Always ensure a firm level surface.

If fitted with electrical wiring, ensure that this is covered or dismantled.

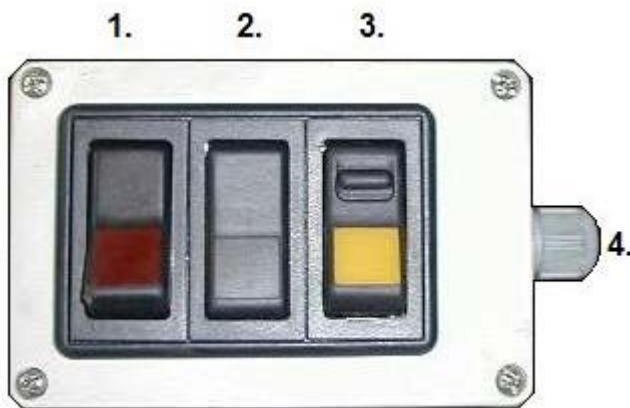


Extra equipment

Electric start and cutting angle adjustment

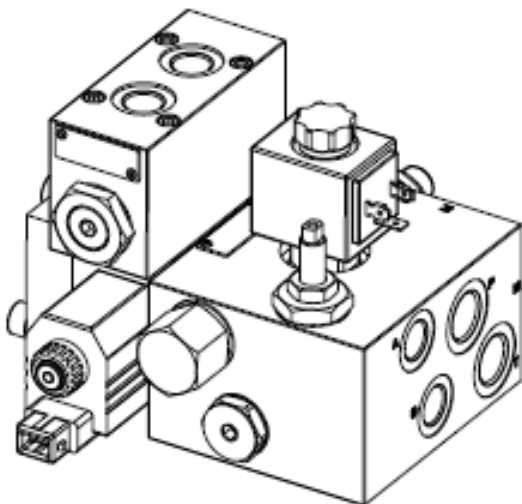
- This equipment allows you to adjust the cutting angle from the compact loader.
- Work the machine by using the black switch (2) on the control panel.
- Once the correct angle is set, you can begin to work.
- Correction is also possible while working. Use small movements. Large corrections is best done while stationary.
- This electrical equipment is NOT watertight. When not in use, store in a dry place.

Control panel



- | |
|--|
| <p>1. Switch On/Off
 2. Cutting angle
 3. Tool On/Off
 4. Fuse in the plug (8 amp)</p> |
|--|

Splitter valve "Advanced" with directional valve mounted



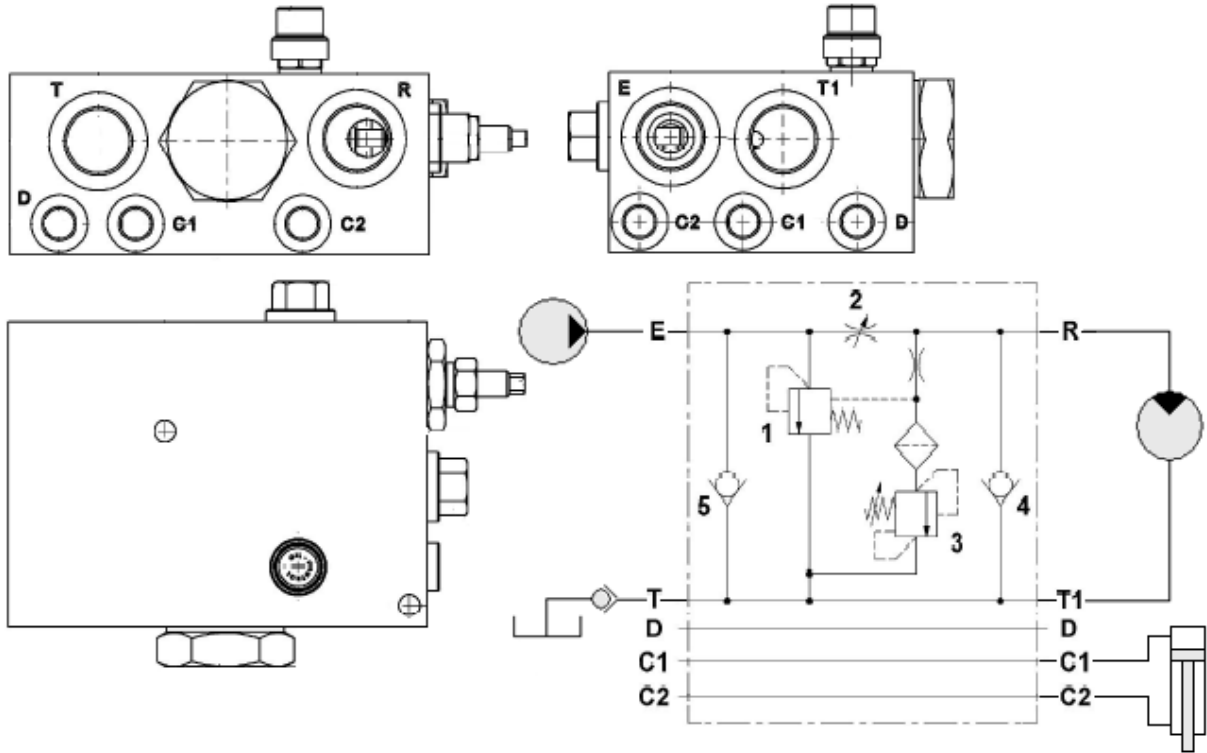
- | |
|---|
| <p><i>Splitter valve:</i>
 A. Pressure (P) for engine
 B. Return from engine
 P. Pressure (P) from pump
 T. Connection to tank</p> <p><i>Directional valve:</i>
 A. Tip tool
 B. Tip tool</p> |
|---|



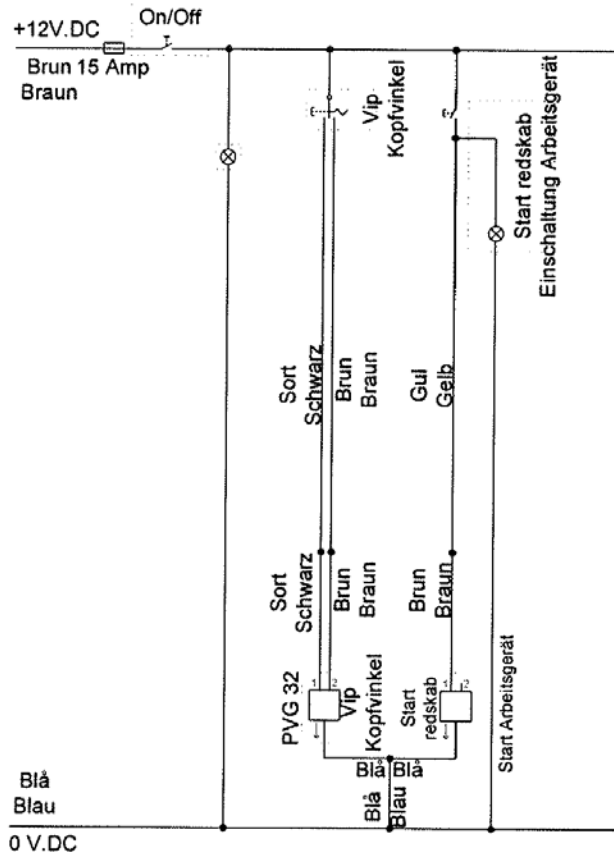
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Diagrams

Splitter valve "Simple"



Electric diagram

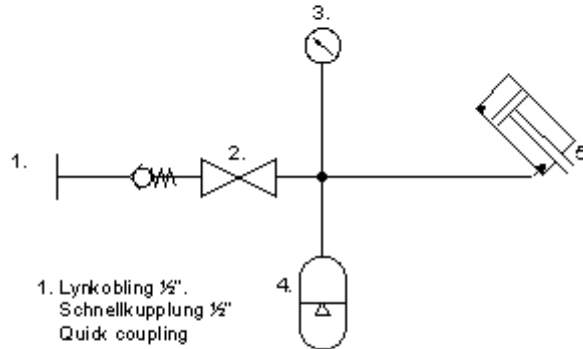




Hydraulic diagram Break-Back

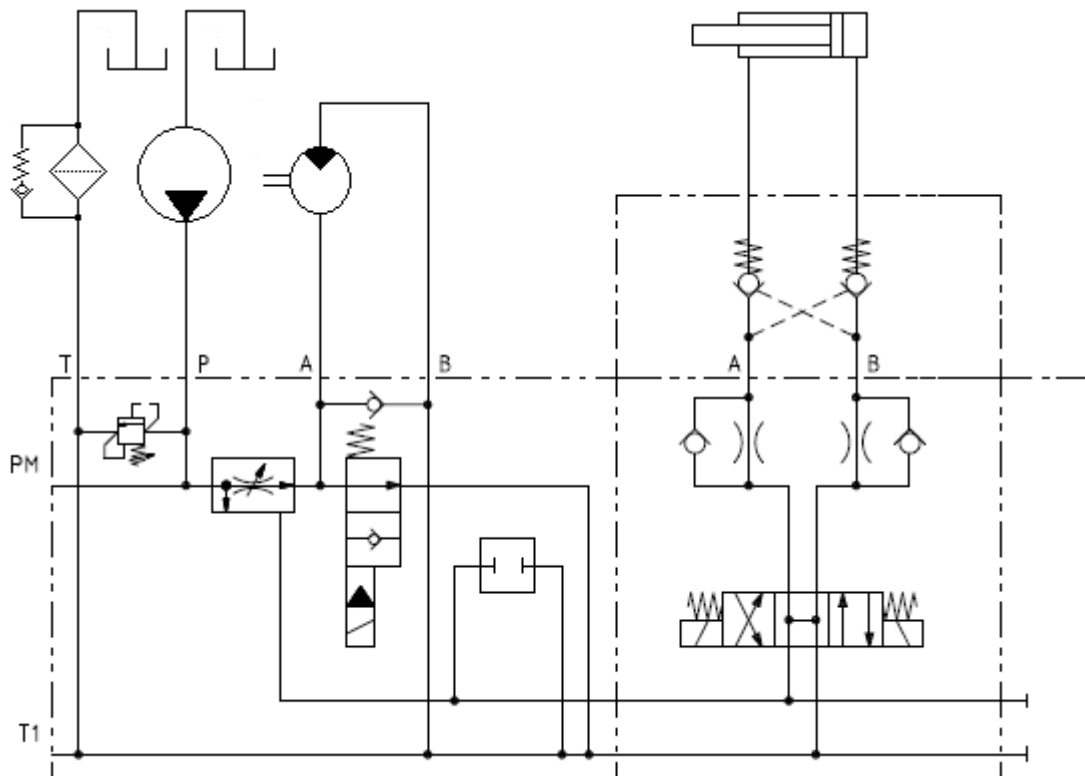
HXF 2302

Påførselskring 40-50 bar
 Anfahrsicherung 40-50 bar
 Break-back 40-50 bar



- 1. Lynkobling 1/2".
Schnellkupplung 1/2"
Quick coupling
- 2. Afspæringshane
Absperrhahn
Cut-off valve
- 3. Manometer. Mini-mesh
- 4. Akkumulator 32 bar
Drückspeicher 32 bar
Accumulator 32 bar
- 5. Påførselscylinder
Anfahrsicherungs Zylinder
Break back ram

Hydraulic diagram with "Advanced" Splitter valve





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Maintenance

Lubrication

After machine wash:

Lubricate all machine parts and extra equipment after each wash.

Hydraulic hoses

Carefully check condition of all hoses during routine service paying particular attention to chafed **Fejl! Bogmærke er ikke defineret.** outer casing. Secure wrap with waterproof adhesive tape to stop the metal braid from rusting. **Fejl! Bogmærke er ikke defineret.**

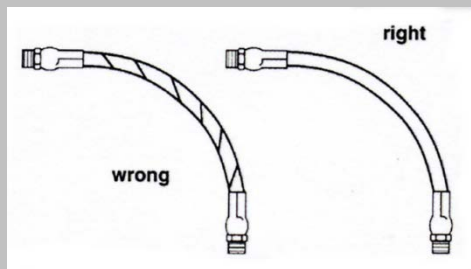
Daily inspect all hydraulic hoses and fittings to be in good order. Any damages or leaks must be **Fejl! Bogmærke er ikke defineret.** rectified immediately; this is part of the daily maintenance and is your responsibility, to unsure a **Fejl! Bogmærke er ikke defineret.** long reliable working life. **Fejl! Bogmærke er ikke defineret.**

Hoses with damaged metal braid should be replaced. **Fejl! Bogmærke er ikke defineret.**

When replacing hoses quote number stamped on fitting at one end. The Spearhead **Fejl! Bogmærke er ikke defineret.** hydraulic system works at very high pressure, when replacing hoses use only genuine hoses, a burst hose could be very dangerous.

When replacing hoses to avoid twisting fitting, use two spanners to slacken and tighten

Fejl! Bogmærke er ikke defineret. Fejl! Bogmærke er ikke defineret. Fejl! Bogmærke er ikke defineret.



Warning!

Hose is weakened when installed in twisted position. Also, pressure pulses in a twisted hose tend to fatigue wire and loosen fitting connections.

Design so that machine motion produces bending rather than torsion.

Always check the black protective sleeve is in good order, to replace sleeve is far cheaper than replacing expensive hoses.

Hose warranty is limited to replacement of hoses due to faulty materials or manufacture Warranty will not be considered on hoses damaged by chafing, abrasion, cuts or pinching while in work, or to damaged threads due to over tightening.





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Oil supply

Daily before starting up check oil level in tank reservoir.

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It is a good practice to constantly keep an eye on the tank level gauge, (this can be seen **Fejl! Bogmærke er ikke defineret.** from the compact loader seat) as a pipe burst could empty the tank within minutes.

Fejl! Bogmærke er ikke defineret.

A pump or motor starved of oil will be damaged beyond repair.

Fejl! Bogmærke er ikke defineret.

Replace oil if signs of contamination occur (discolored)

Fejl! Bogmærke er ikke defineret.

Contamination can be reduced by: **Fejl! Bogmærke er ikke defineret.**
Thoroughly cleaning around reservoir cap before removing. **Fejl!**

Bogmærke er ikke defineret.

Using a clean container when replenishing the system. **Fejl! Bogmærke er ikke defineret.**

defineret.
Regularly servicing the filtration system. **Fejl! Bogmærke er ikke defineret.**

defineret.
Never allowing oil level to fall below the sight gauge. **Fejl! Bogmærke er ikke defineret.**

Daily inspect all hydraulic connections and fittings to be in good order. Any damage or leaks must be rectified immediately; this is part of the daily maintenance and is your responsibility, to maintain a long reliable working life.

When tightening fittings always use two spanners when necessary and do not over tighten. If a fitting leaks it will need to be replaced. **Fejl! Bogmærke er ikke defineret.** **Fejl! Bogmærke er ikke defineret.** **Fejl! Bogmærke er ikke defineret.** **Fejl! Bogmærke er ikke defineret.** **Fejl! Bogmærke er ikke defineret.**

Regular service chart

Service hours	Service points	Grease	Drain	Check	Clean	Change
1 – 4 hrs	Bolts are fully tightened			X		
	Seals on valve block (If leaking change as soon as possible)			X		(X)
	Check for leaks from fittings and hoses			X		
	Pins and bushes lubricated, tightened			X		



Pins and bushes

All main pivot points are furnished with replaceable bushes. If there are any signs of wear, these must be replaced. All bushes are available from GreenTec's Parts Department. **Fejl! Bogmærke er ikke defineret.**



Warning!

Do not use grease containing Molybdenum disulphide on nylon bushes and wear pads.

Storage

Before storing away, thoroughly wash the machine removing all traces of grass and dirt. Great care must be taken when washing with high-pressure hoses, do not hold the water jet close to the paintwork. Use steam cleaners with caution; be sure to remove all detergents to avoid any discolouring or damage to paint. Grease all grease points until fresh grease shows. It is important where possible to store undercover to protect against rain and sunlight. Always ensure a firm level surface. Control levers must be wrapped in plastic sheeting and taped over to keep dry. **Fejl! Bogmærke er ikke defineret.**

Option: Joy stick and electrical equipment, which are NOT water tight, must be wrapped in plastic to keep them dry. Or dismantled.



Warning!

Before you attempt to do any repairs, service, maintenance or adjustment on your machine, ensure that the engine has stopped and the key is removed. PTO is disengaged, hand brake secure and the tool is firmly on the ground.

Remember regular maintenance will greatly increase the life of the machine.



Problem solving

Problem	Cause	Solution
Valve or engine leak	Return oil pressure too high	Check oil pressure. Free to tank. Change washer.
	Leak oil pressure too high	Check oil pressure. Free to tank. Change washer.
	Return hose not mounted correctly or fallen off	Install correctly or reinstall. Change valve seals.
Over heating	Incorrect tool speed	Test RPM on tool.
	Wrong oil level	Check oil level
	Wrong oil type	Empty the tank and refill with correct oil type.
	Blockage of blades	Remove cuttings/debris.
	Air temperature is too high	Install a hydraulic fan. Reduce operating speed.
Electrical failure	Wrong supply from compact loader	Check the security fuse and connections from your compact loader.
	Contacts have been exposed to water	The machine should be stored under a roof or covered up.
Hydraulic failure	Oil level too low	Refill with oil to the correct position.
	Pressure hose is broken	Check that the pump rotates
	Oil leak in pressure hose	Check machine for leaks
	Oil pump filter is blocked	Replace the filter element
Irregular arm movements	Broken spring in the valve	Check the spring
	Defective seals in hydraulic cylinder	Hydraulic ram repair
Electrically operated valve is not responding	Defektive wiring	Check the wiring and switches
	Dirt in valve	Check for ingress of dirt.
	Valve stuck	Replace the valve
	Insufficient voltage	Check for loose connections.



GreenTec Warranty

GreenTec warrants that the GreenTec machine referred to in the Warranty Registration Form will be free from defects in materials and workmanship for a period of 12 months from the date of sale. This warranty does not affect your statutory rights, but merely adds to them. Should you have a problem within 12 months from the date of sale please contact your original GreenTec dealer, or GreenTec's Service Department. Any part found to be defective during this period will be replaced or repaired, at GreenTec's discretion, by the dealer or a GreenTec Service Engineer.

GreenTec Warranty Conditions

1. The Warranty Registration Form (green page) must be completed and returned to GreenTec within 7 days of the date of sale
2. This warranty does not cover defects arising from fair wear and tear, willful damage, negligence, misuse, abnormal working conditions, use in competition, failure to follow GreenTec's instructions (oral or written, including all instructions and recommendation made in the Operator's Manual) or alteration or repair of the machinery without GreenTec's approval.
3. The machinery must have been serviced in accordance with the Operator's Manual and the Service Log must have been kept up to date and made available to the dealer should service, repair or warranty work be undertaken.
4. This warranty does not cover claims in respect of wearing parts such as blades, flails, paintwork, tires, belts, hydraulic hoses, bearings, bushes, linkage pins, top links, ball ends unless there is a manufacturing or material defect or the cost of normal servicing items such as oils and lubricants.
5. This warranty does not cover any expenses or losses incurred whilst the machinery is out of use for warranty repairs or parts replacement.
6. This warranty does not extend to parts, materials or equipment not manufactured by GreenTec, for which the Buyer shall only be entitled to the benefit of any such warranty or guarantee given by the manufacturer to GreenTec. Only genuine GreenTec replacement parts will be allowable for warranty claims.
7. All parts replaced by GreenTec under warranty become the property of GreenTec and must be returned to GreenTec if GreenTec so requests. Such parts may only be disposed of after a warranty claim has been accepted and processed by GreenTec.
8. GreenTec is not liable under this warranty for any repairs carried out without GreenTec's written consent or without GreenTec being afforded a reasonable opportunity to inspect the machinery the subject of the warranty claim. GreenTec's written consent must, therefore, be obtained before any repairs are carried out or parts replaced. Use of non- GreenTec parts automatically invalidates the GreenTec Warranty. Failed components must not be dismantled except as specifically authorized by GreenTec and dismantling of any components without authorization from GreenTec will invalidate this warranty.
9. All warranty claims must be submitted to GreenTec on GreenTec Warranty Claim Forms within 30 days of completion of warranty work.

Using the machine implies the knowledge and acceptance of these instructions and the limitations contained in this Manual.



GreenTec



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Cutting Edge Technology