

**Spearhead Machinery  
Operator Instruction Manual For**

**AGRICUT 240 OFFSET  
FOR MACHINES WITH WGC 9561210**

**2.4m cut width, 540 PTO input**

Vegetation control twin rotor side mounted pasture topper

**8999154EN v1.0**

# IMPORTANT

## Verification Of Warranty Registration

### Dealer Warranty Information & Registration Verification

It is imperative that the selling dealer registers this machine with Spearhead before delivery to the end user.

**Failure to do so may affect the validity of the machine warranty.**

To register machines go to the Spearhead Machinery Limited web site at:

<https://my.spearheadmachinery.com/warranty/machine-registration/>

Should you experience any problems registering a machine in this manner please contact the Spearhead Service Department on 01789 491867.

Confirm to the customer that the machine has been registered in the section below.

### Registration Verification

<b>Model Type:</b>		<b>Agricut Offset</b>
<b>Model Number:</b>		<b>9561210</b>
<b>Serial Numbers:</b>	<b>Machine:</b>	<b>S</b> _____
	<b>Cutting Implement:</b>	<b>S</b> _____
	<b>Other:</b>	
<b>Name Of Owner:</b>		
<b>Name Of Installing Dealer:</b>		
<b>Dealer Address:</b>		
<b>Dealer Signature:</b>		
<b>Date Of Delivery / Installation:</b>		
<b>Date Of Warranty Registration:</b>		

#### IMPORTANT

At the point of transfer of ownership record the above information. Note the serial number of your machine and always quote it in any communication with us or your dealer. (The serial number plate is located on the machine mainframe.) This is particularly important when ordering spares. Remember to include all numbers and letters.

The information given throughout this manual is correct at the time of publication. However, in the course of constant development of Spearhead machines, changes in specification are inevitable. Should you find the information given in this book to be at variance with the machine in your possession, you are advised to contact the Spearhead Service department where up-to-date information will be provided.

The manual can contain standard and optional features and is not to be used as a machine specification. The machine has been tested and is considered safe if carefully used. Ensure your operator is properly trained in its use and maintenance.

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## Agricut 240 Offset Rotary Mowers

This manual includes instructions for installation, use and maintenance of the Agricut 240 offset rotary mowers in the following sections.

The machine is intended for the topping of grass pasture land after grazing, or for weed and thistle control on agricultural land. The machine is drawn by the tractor by means of a three-point hitch. The machines work on the ground under their own weight and by virtue of rotating rotors that are driven by the tractor's power take-off by means of a P.T.O shaft connection. Any different use should be considered improper and therefore potentially dangerous to the safety of the operator and any exposed persons. This manual is integral to the Agricut rotary mower, defines the purpose for which it was built and contains all the information required for proper and safe use. Regular machine operation depends on its correct use and adequate maintenance: it is advisable, therefore, to follow these instructions carefully to prevent any situation that could compromise the machine's operation and durability. It is also important to follow that which is described in this manual since Spearhead declines any liability resulting from negligence of from not observing these norms, since it would result in the warranty being annulled.

**It is mandatory** to verify upon delivery that the Agricut rotary mower is integral and complete in all its parts. Any complaints must be presented in written within 8 (eight) days from receiving the machine. Spearhead can however be contacted at any time for immediate and precise technical assistance and anything required for optimum operation and maximum performance of the equipment. Upon receiving the product, carefully read the manual and carefully follow the instructions contained in it.

### IMPORTANT

This operator's manual should be regarded as part of the machine. Suppliers of both new and second-hand machines are advised to retain documentary evidence that this manual was provided with the machine.

This machine is designed solely for ground vegetation control and must not be used for any other purpose. Use in any other way is considered as contrary to the intended use. Compliance with, and strict adherence to, the conditions of operation, service, and repair, as specified by the manufacturer, also constitute essential elements of the intended use.

This machine should be operated, serviced, and repaired only by persons who are familiar with its characteristics and who are acquainted with the relevant safety procedures.

Accident prevention regulations, all other generally recognised regulations on safety and occupational medicine, and all road traffic regulations must always be observed.

Any arbitrary modifications carried out to this machine may relieve the manufacturer of liability for any resulting damage or injury.

It is potentially hazardous to fit or use any parts other than genuine **Spearhead** parts.

The company disclaims all liability for the consequences of such use which, in addition, voids the machine warranty.

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# 1 Machine Description

## 1.1 Intended Usage

### 1.1.1 Allowed Uses

The machine has been designed for use in the agricultural sector only, for the topping of grass pasture land after grazing, or for weed and thistle control on agricultural land.

When the rotary mower works it guarantees the required level of safety even in the presence of an insignificant malfunction of its components or hazardous operating conditions, however, always within the permitted uses.

The rotary mower must not be used for purposes other than those described in this manual.

### 1.1.2 Improper Uses

The machine is not intended for grass mowing, or for the cutting of set-aside, or brush/woodland clearance.



**DANGER!** Under no circumstances should the machine be used for any purpose other than the permitted uses (given above) or in any field other than the agricultural field. More specifically, it must not be used for: Shredding woody stalked plants, grinding wood, or for similar applications on hard materials, or working with blades in contact with the ground. Do not use the machine on stony ground as this would mean the blades would come into contact with stones, with the extremely hazardous result of stones being flung off at great speed. In addition, the blades would fail mechanically straight away, with just as serious consequences. Failure to comply with the instructions given shall result in serious safety hazards. If in any doubt, contact the manufacturer.

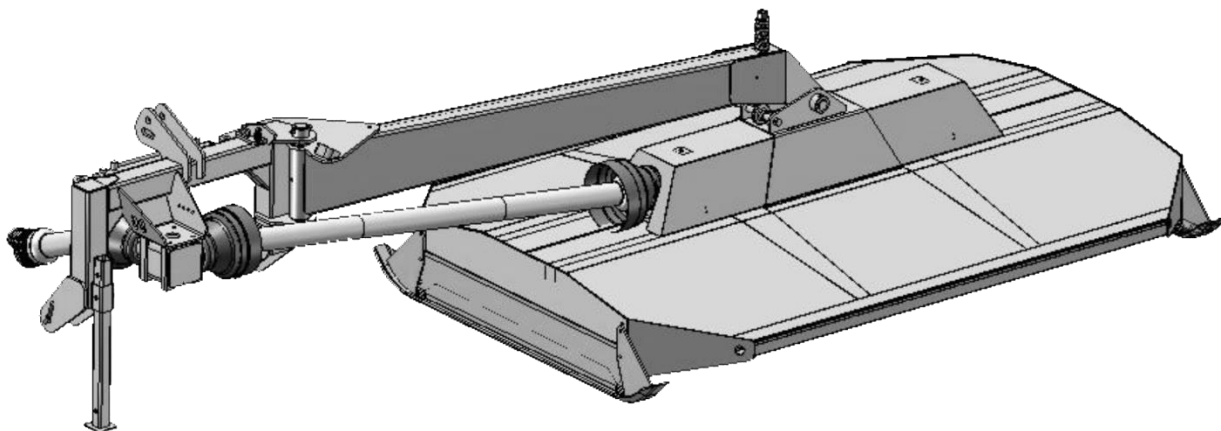


**WARNING!** Failure to follow these rules may expose people to the danger of serious harm or even death.

The P.T.O must be run at the required speed (540 rpm).



**DANGER!** Do not make sharp turns while the machine is working, making sure you always lift it when changing direction and reversing.



**Figure 1.1 Spearhead Agricut 240 Offset**



## 1.2 General Arrangement

Figure 1.2 shows the layout of the Agricut 240 Offset. The operator should familiarise themselves with the various elements, as they are referred to in other sections of this manual.

The rotary mowers consist of the following parts:

### 1.2.1 General Arrangement

ITEM NO.	DESCRIPTION.
1	Main Headstock A Frame
2	Input PTO Shaft
3	Swing Arm
4	Suspension Adjuster
5	Main Cutting Deck
6	Secondary PTO Shaft
7	Input Gearbox
8	Parking Leg
9	Height Adjusting Skid
10	Transmission Guards
11	Rotor Hub (2 off)
12	Blade Carrier (2 off)
13	Blade (LH)
14	Blade (RH)
15	Main Headstock A Frame

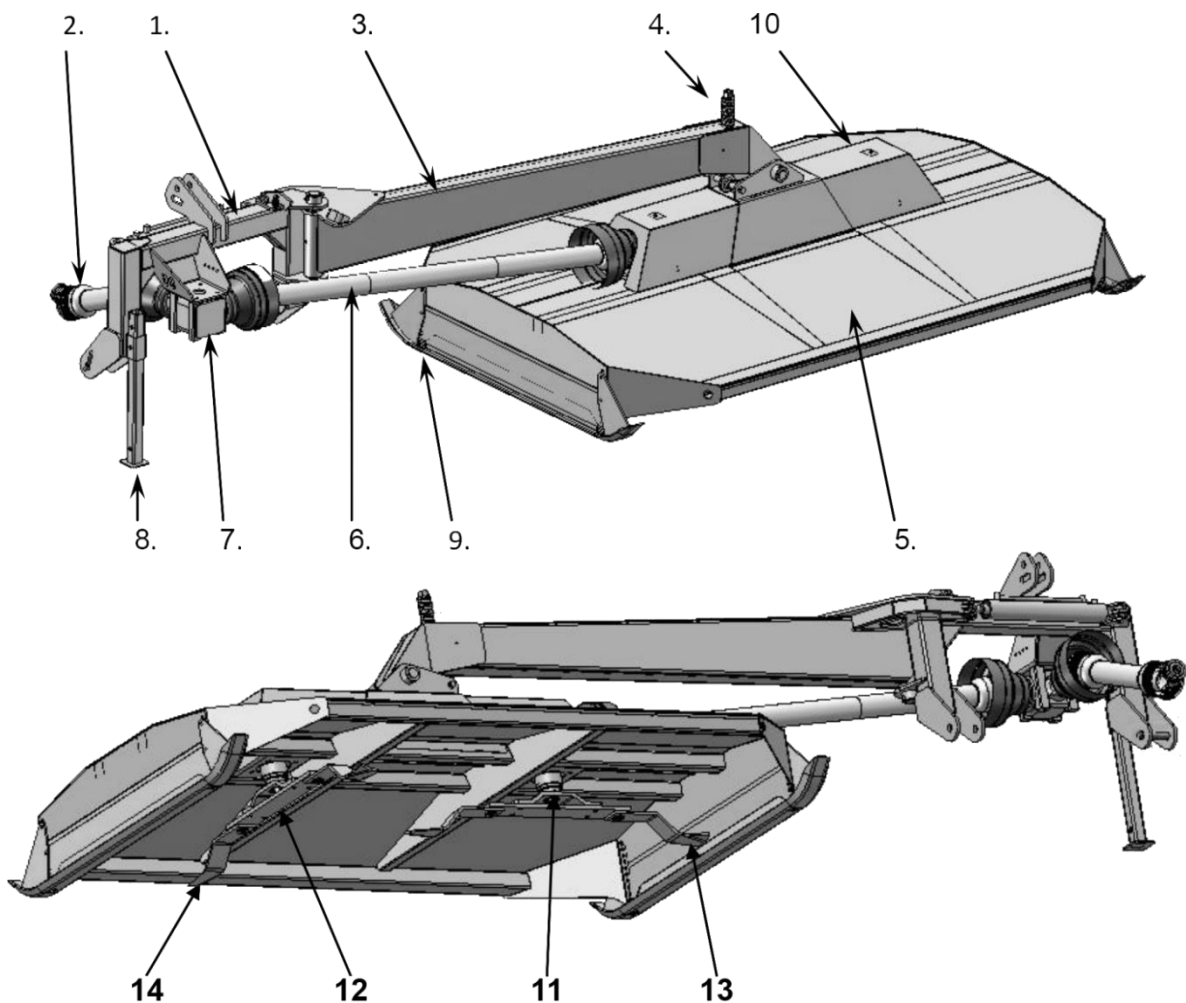
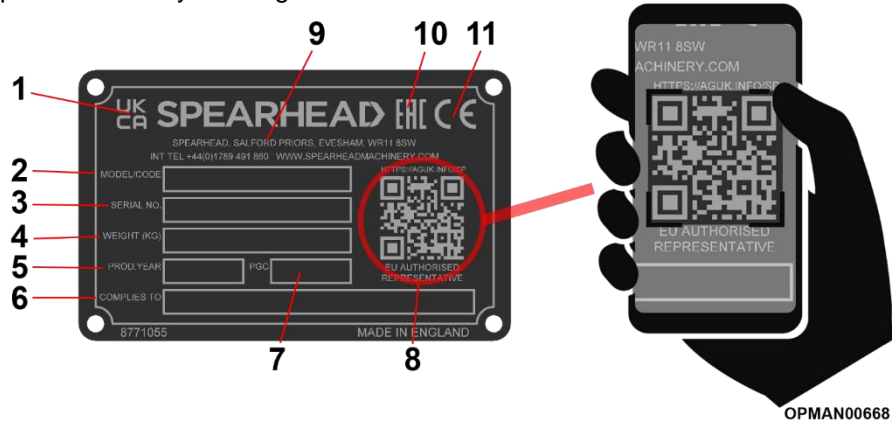


Figure 1.2

## 1.3 Identification

Each machine is equipped with a serial plate; see Figure 1.6 that includes the following data in this order:

1. UKCA Conformity Marking.
2. Machine Whole Goods Code (WGC).
3. Serial number of the machine.
4. Mass in kg.
5. Production Year (year of construction).
6. Design conformity standard.
7. Machine Product Group Code.
8. EU Authorised Representative QR scan code.
9. Manufacturer marking with name and address.
10. EAC Eurasian/Russian Conformity Marking.
11. EC European Conformity Marking.



**Figure 1.6 – Serial Plate**

Data on the Spearhead manufacturer's plate should always be referred to when requesting assistance and/or requiring replacement spare parts.

This data can identify the machine and its characteristics and specification for its particular time of manufacture, certifying that it responds to current regulations. For this reason the plate should never therefore be removed nor be used for other purposes; if the machine is dismantled, it should be destroyed to prevent any form of abuse.

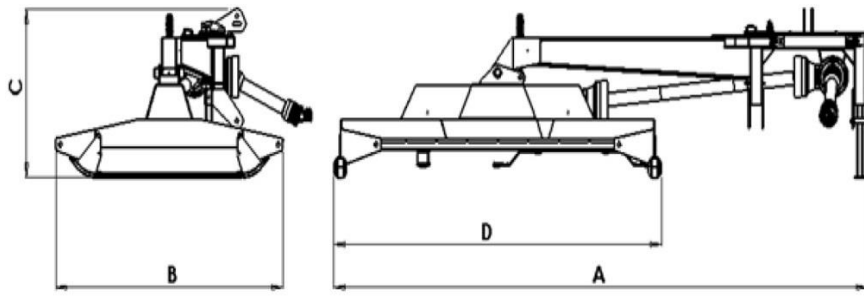
By utilising a smart phone and scanning the Authorised Representative QR scan code found on the right-hand side of the serial plate (ref 8, Figure 1.6) using a suitable QR scanning App, you can find details for Spearhead Machinery authorised representatives for its various territories.

## 1.4 Machine General Specification

Agricut Series (1)		Agricut 240 Offset	
A	Overall Length	4366mm	See Figure 1.4
B	Overall Width	1856mm	
C	Overall Height (max)	1060mm	
D	Deck Width	2679mm	
Weight		540kg	
Number of Rotors		2	
Number of Blades		4	
Cutting Width		2400mm	
Linkage Mounting		Cat II	
P.T.O Speed		540rpm	
Power		22kW (30hp) at P.T.O.	
Cutting Height		30-150mm	

### Notes:

- (1) Spearhead constantly reviews and improves product designs and reserve the right to change this information. Actual machines may vary from the above specification. Contact your Spearhead Sales representative if you have any queries.



**Figure 1.4**

## 2 Safety

### 2.1 Level Of Danger

The safety of the operator and exposed persons is the main concern of the designer and the manufacturer of the machine. When designing a new machine, one tries to plan for all possible danger situations and risks connected to using the machine, adopting the steps necessary to make the equipment as safe as possible. The number of accidents remains very high however, especially due to incautious and awkward use of the machine. It is therefore recommended to carefully read this manual and this section in particular, regarding safety standards, avoiding behaviour that is inappropriate or in contrast with the instructions contained in this manual.

Pay attention to the following danger signal where contained in this manual and follow safety instructions.



**DANGER!**

Level 1 - This signal warns that if the described operations are not carried out properly, they will cause serious injury, death or long-term health risks.



**WARNING!**

Level 2 - This signal warns that if the described operations are not carried out properly, they may cause serious injury, death or long-term health risks.



**CAUTION!**

Level 3 - This signal warns that if the described operations are not carried out properly, they may cause damage to the machine.

### 2.2 Terminology

The indicated levels of danger refer to specific risk situation that may occur during machine use and may involve the same machine, the operator and any exposed persons. With the purpose of highlighting situations or operations that may result in risks, the meanings of terms used in this manual are indicated here:

- **HAZARDOUS AREA:** Any area in and/or around a machine where the presence of an exposed person constitutes a risk to the health and safety of said person
- **EXPOSED PERSON:** A person fully or partly in a hazardous area
- **OPERATOR:** The person or personnel in charge of the installation, the operation, the adjusting, the cleaning, the repairing and the moving of the machine.
- **SPECIALISED PERSONNEL:** any person specifically trained and approved to carry out maintenance or repair interventions that require particular knowledge of the machine, its operation, the installed safety devices, intervention modes. It must be capable of recognising danger present on the actual machine, therefore avoiding at risk situations.
- **RISK:** a combination of the probability and seriousness of injury or damage to health which can arise in a dangerous situation.
- **GUARD:** a part of the machine that is used to specifically guarantee protection by way of a material barrier.
- **PROTECTION DEVICE:** a device that reduces risk (unlike the guard) either on its own or together with the guard.
- **INTENDED USE:** the use of the machine in accordance with the information provided in the operating instructions.
- **REASONABLE FORESEEABLE MISUSE:** the use of the machine different to the information provided in the operator's instructions, which may be the result of readily predictable human behaviour.
- **AUTHORISED ASSISTANCE CENTRE:** The Authorised Assistance Centre, legally authorised by the Manufacturer, is formed by specialised staff able to carry out all types of assistance, maintenance and repair work, even of a certain complexity, required to maintain the machine in perfect working order.



**WARNING!** Carefully read the following rules. If the instructions described are not followed, a situation may arise which causes irreparable damage to the machine or property, or injury - even severe - to people or animals. Spearhead declines all responsibility for damage caused by not complying with the safety and injury prevention regulations described below. Spearhead also declines any responsibility for damage caused by improper use of the machine and/or as a result of modifications made without authorisation by the manufacturer.

## 2.3 Safety Decals

The rotary mower is equipped with safety decals warning about residual risks present on the machine that were not possible to eliminate. Figure 2.1 specifies the meaning of symbols contained in the decals. The operator must memorise the meaning of these decals. The labels should always be kept clean and replaced immediately if they are fully or partially detached or damaged.



### Read and Comply with Operator's Manual

Read and understand the Operator's Manual before attaching and operating this machine.



### Beware of Rotating Blades

Danger of cutting or severing of limbs under covered rotating parts. Do not reach or probe under the machine when it is driven by the tractor.



### Stop the Tractor before Working on the Machine

Always let the tractor come to a stop, and remove the starter key before you adjust, lubricate, repair or carry out any maintenance work on the machine.



### Machine Lifting Points

When lifting the machine with other than approved tractor attachment points, use the marked lifting points for safe and balanced lifting.



### Keep a Safe Distance from the Machine

Danger of flying objects when the machine is working. Bystanders must keep a safe distance when machine is being used.



### Input P.T.O. Speed

The rated P.T.O. speed for this machine is 540 rpm. For optimum performance, the machine should be driven at this speed. Under no circumstances, should this speed be exceeded.



### Risk of Hand Entanglement

Rotating parts under cover.

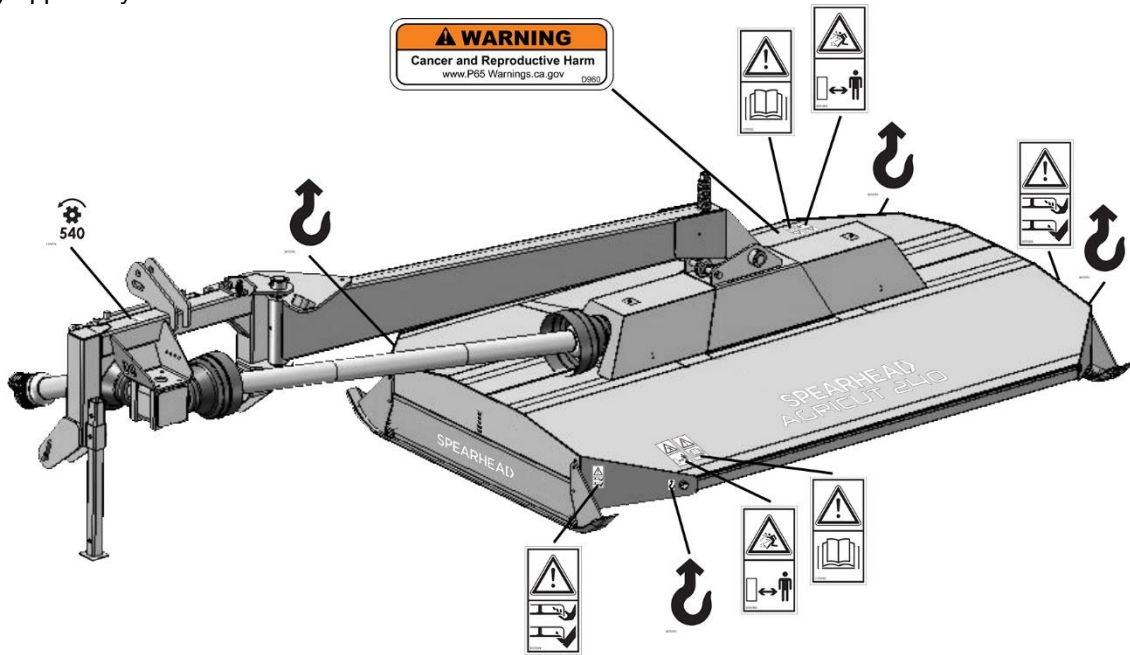


### P65 cancer and reproductive harm

Operating, servicing and maintaining this equipment can expose you to chemicals which are known to the State of California to cause cancer and birth defects or other reproductive harm.

Figure 2.1

Figure 2.2 shows an indication of the precise points on the machine where the safety decals and serial plate are usually applied by the manufacturer.



Agricut 240 Offset

Figure 2.2

## 2.4 Proposition 65



Figure 2.3

Operating, servicing and maintaining this equipment can expose you to chemicals including gasoline, diesel fuel, lubricants, petroleum products, engine exhaust, carbon monoxide, and phthalates, which are known to the State of California to cause cancer and birth defects or other reproductive harm.

To minimize exposure, avoid breathing exhaust, do not idle the engine except as necessary, service your vehicle in a well-ventilated area and wear gloves and wash your hands frequently when servicing your vehicle. Battery posts, terminals and related accessories contain lead and lead compounds, chemicals known to the state of California to cause cancer, birth defects or other reproductive harm.

For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

This website, operated by California's Office of Environmental Health Hazard Assessment, provides information about these chemicals and how individuals may be exposed to them.

## 2.5 Personal Protective Equipment

In general it is necessary to wear suitable clothing for the work to be carried out. In particular, as far as rotary mowing use, obey the following provisions:

- **It is mandatory** to use clothing which is as suitable as possible, meaning not too loose and without any protruding or moving parts (for example ties or necklaces). Do not wear belts, rings and chains. Always use sturdy safety footwear. Long hair must be tied using a specific cap.
- **It is mandatory** to use protective goggles or a mask before proceeding with the work in order to protect the face and eyes from vegetable fragments which may be projected outwards during rotary mowing.
- **It is mandatory** to use protective muffs in order to safeguard hearing from noise from the equipment during work.

## 2.6 Ecology And Pollution



**DANGER!** Comply with laws in force in the country the machine is being used in regarding use and disposal of products employed in cleaning and servicing the machine, and comply with the instructions issued by the manufacturer of said products and featured in the warnings on the relevant packaging. Keep products used for cleaning and maintenance out of reach of children.

### 2.6.1 Disposal

When the time comes to scrap the machine, it must be disposed of through a suitable rubbish tip, in compliance with current legislation. Before scrapping, sort the machine's components into plastic or rubber parts, electrical and electronic material.

Parts made entirely from plastic, aluminium or steel can be recycled when collected by special recycling centres. Collect up waste oil and dispose of it through relevant collection centres.



**DANGER!** Waste oil qualifies as hazardous waste according to current law and, as such, must not be released into the environment; it should be recovered and disposed of through suitable collection centres.

You must contact the relevant environment agency in your country for the collection of waste oil.

## 2.7 Safe Use

NOTE: All references to 'tractor' equally apply to any power sources used to drive the machine.



**WARNING!** All guards must be correctly fitted. Always ensure that all guards are in position, properly fitted and properly maintained. Do not attempt to operate the machine before making this check each time the machine is used.



**WARNING!** Fit the Power Take Off (P.T.O) shaft guard & check chains. P.T.O guard check chains must always be attached to a suitable point on the tractor and machine to prevent movement of the outer plastic shields.



**WARNING!** Beware of bystanders and animals. Before starting the tractor engine and moving off, check that it is safe to do so. Never operate the machine with bystanders or animals near or on the machine or tractor. Never stand in or walk through the flow of any material being discharged. Never stand between tractor wheels and the machine.



**WARNING!** Always operate safely. Never operate the machine without maintaining full control of the tractor.



**WARNING!** Never wear loose fitting or ragged clothing. Avoid injury - always wear clothing which cannot get caught in machinery.



**WARNING!** Never operate the machine with any parts missing. Check the machine regularly for loose or damaged parts. Pay particular attention to the condition of all safety guards. Always use genuine Spearhead Machinery replacement parts in the interest of safety. Failures caused by the use of

unapproved replacement parts will not be covered by our warranty, nor will any liability be accepted for damages or injury thus incurred.



**WARNING!** Always carry out safe maintenance. Before attempting any repair or maintenance to the machine, always switch off the tractor engine and remove the P.T.O. shaft. Do not work under any machine raised on hydraulics unless it is supported by a solid safety support.



**WARNING!** Beware of dust. Keep tractor cab windows and doors closed at all times to reduce the risk of dust and flying debris from entering. In dusty conditions the use of a suitable mask, to EN 149, is strongly recommended.



**WARNING!** Never handle leaks in hydraulic hoses which are under pressure. High pressure hydraulic oil can pierce skin and enter the blood stream.



**WARNING!** Certain tractor implement combinations, dependant on operating conditions, may generate a noise level in excess of 90db at the operator's ear, even in a 'Q' cab. In these circumstances ear defenders should be worn. Keep cab windows and doors closed at all times to reduce noise levels.



**WARNING!** Certain tractor implement combinations, dependant on operating conditions, may generate a noise level in excess of 90db at the operator's ear, even in a 'Q' cab. In these circumstances ear defenders should be worn. Keep cab windows and doors closed at all times to reduce noise levels.

### 2.7.1 For The Owner And Operator



**WARNING!** Always have this operator's manual available for quick and easy reference.



**WARNING!** Do not start or carry out maintenance on this machine until you have read all the safety precautions to be observed and until you fully understand the controls and functions of the machine as detailed in the following sections. If you do not understand any part of this manual, ask your dealer for assistance.



**WARNING!** Never operate the machine with any of the rotor blades missing or damaged. To prevent injury when changing the blades, always block the rotor to stop it rotating.



**WARNING!** Never stand on the machine, attempt any maintenance or adjustments with the tractor engine running or P.T.O. shaft connected.



**WARNING!** The operator must retain full control of machine and tractor functions at all times whilst the machine is in operation.



**WARNING!** A four leg chain sling is required to hoist the machine. The sling should be approved to a minimum lift capacity of one tonne. The lifting points are clearly marked with 'hook' symbols.



**WARNING!** Always ensure the tractor front end weight is sufficient to give proper front wheel contact and safe steering when machine is raised on tractor hydraulics.



**WARNING!** Never operate the machine when bystanders are present as foreign objects could be ejected at very high speed from underneath it.



**WARNING!** It is the owner's/operator's responsibility to ensure that the machine is fitted with correct lighting and safety markings when moving it on the public highway during the hours of darkness.



**CAUTION!** Spearhead Machinery will not be held responsible for failure caused by the use of incorrect lubricants. For further information, refer to the lubrication chart; see Section 6.13.



## **2.7.2 For The Employer**

Every employee must be given training at regular intervals on how to use this machinery (at least once a year) in accordance with the guide lines issued by the employer's insurance. Untrained or unauthorised members of staff must not use this machine.

## 3 Machine Transportation

### 3.1 Lifting



**WARNING!** Only use approved lifting equipment which is correctly fastened to the machine. This will increase your personal safety. Failure to follow the safety instructions could result in accidents and serious injuries.

The vehicle used to transport the machine must be sufficiently powerful, of an appropriate size and suitably prepared for the purpose.

Before transporting the machine, see Section 1.4 giving the weights and dimensions of the machine. Transportation should be carried out by qualified haulage contractors who guarantee correct handling of the material being carried.

The Manufacturer accepts no liability for transportation arranged by the Customer or by haulage contractors appointed by the latter. The machine must be loaded, taking care to avoid damage to the same by any other loads.

Before using, check that the available means are intact and suitable. Select ropes and/or chains that have a minimum Safe Working Load (SWL) of 1.5 tonnes, attaching them only to the lifting points designed for that purpose and marked with the relative symbol.

#### 3.1.1 Lifting

Use only the marked lifting points shown, and marked on the machine with the lifting decal.

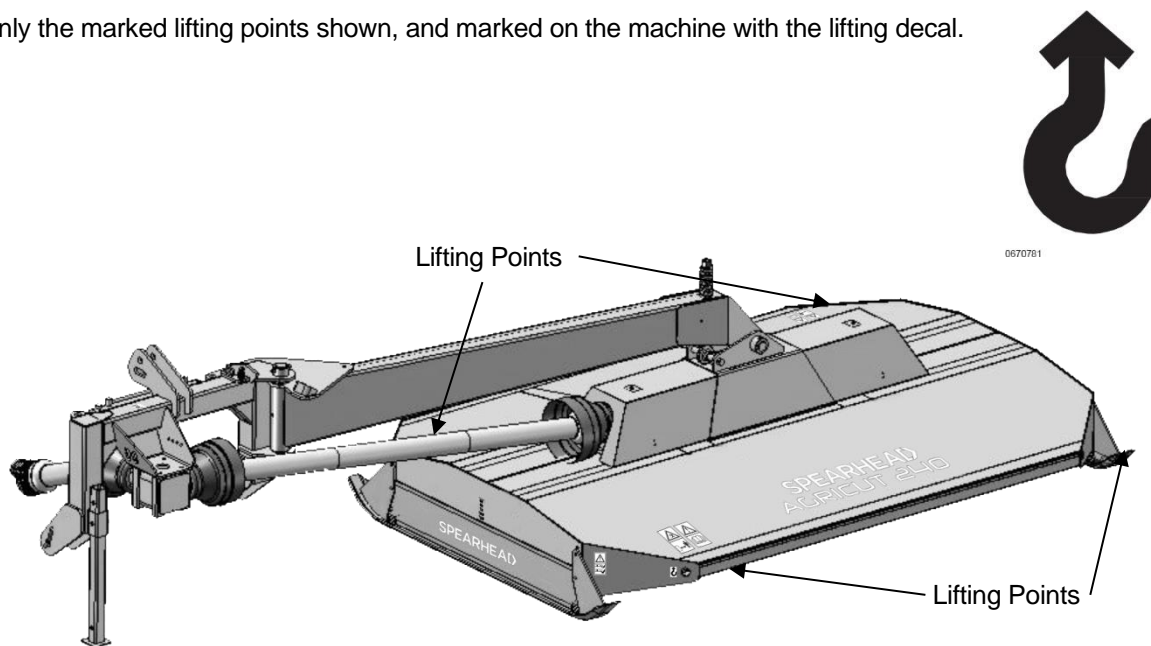
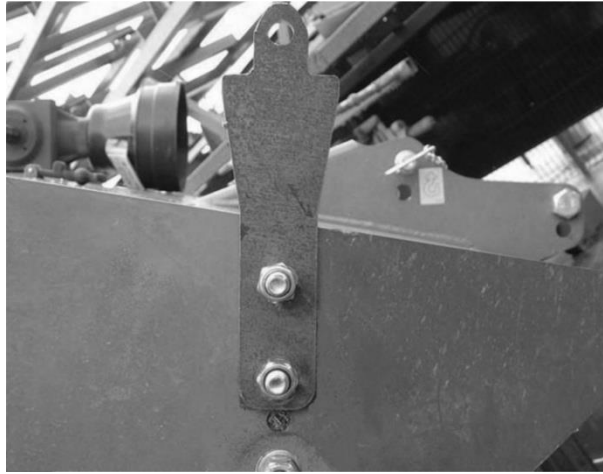


Figure 3.1

## 3.2 Unpacking

Remove the P.T.O. shaft from its storage position, and place it safely away from machine. Ensure the manufacturer's instruction book is kept in a safe place for future reference.



**Figure 3.2**

Remove any stacking/transport legs attached to the machine; see Figure 3.2



**Figure 3.3**

Check underneath the machine and remove any restrainer wire or cable ties used to prevent blade movement during transport; see Figure 3.3.

Inspect the underside of the machine for damage and ensure the blade rotates freely and does not foul on the body.



**WARNING!** Before attempting to access the underside of the machine, ensure it is adequately and safely supported. Do not rely on the tractor's hydraulics. Use safety supports that have a minimum Safe Working Load (SWL) of 1.5 tonnes.

## 3.3 Transportation

### 3.3.1 Putting Into Transport Position



**Figure 3.4**

With the P.T.O. shaft correctly connected, raise the machine to a safe transport position. Lock the lift arm stop in this position; see Figure 3.4.



**CAUTION!** Raising the tractor lift arms too high may cause damage to the P.T.O. shaft if the tractor was to drive over any bumps and the machine was to bounce on the lift arms.

Check that there is no lateral movement on the machine when it is in the raised position. Adjust the tractor stabiliser chains (or bars) if required.

## 3.4 Public Roads



**WARNING!** Read all the safety instructions carefully before driving on the public road. This will ensure that dangerous situations and accidents are avoided. Lack of information can cause accidents.

- 3.4.1.1 Comply with the local law concerning lights, warning and safety signs.
- 3.4.1.2 The driver and/or the owner of the machine have the responsibility of complying with the local Road Traffic Acts.
- 3.4.1.3 The tractor's manoeuvrability should not be adversely affected. The steering axle of the tractor should be loaded with at least 20% of the tractor's dead weight.
- 3.4.1.4 Carrying passengers on the machine is strictly prohibited.

### 3.4.2 Before Driving On Public Roads

The machine should be raised on the lift arms to the Transport Position and the following checks made:

- 3.4.2.1 Is the machine correctly coupled with all securing pins and clips in position?
- 3.4.2.2 Does the machine have any loose or unsecured parts?
- 3.4.2.3 Are the tractor's lights, indicators and beacon working correctly and are they all clearly visible?
- 3.4.2.4 Are there any bystanders or children in the immediate area? If so, ask them to clear the area before moving off.

### 3.4.3 Driving On Public Roads

- 3.4.3.1 Check the area around the machine before you start. Be aware of children in the danger area of the machine.
- 3.4.3.2 Do not exceed 30 km/h.
- 3.4.3.3 Adjust the speed according to the road conditions.
- 3.4.3.4 Avoid sudden sideways movement with the machine attached.
- 3.4.3.5 Make sure that steering and braking ability are not compromised.
- 3.4.3.6 Take care when turning corners, as the machine may swing out into the path of other road users.

## 3.5 Machine Storage

### 3.5.1 Safely Preparing For Storage



**WARNING!** The machine must be correctly secured when parked in storage. A correctly secured machine prevents serious accidents. If the machine is not properly secured when parked it can result in serious injuries or death.

Therefore, when disconnecting, make sure that:

- 3.5.1.1 The machine is placed on a firm and level surface.
- 3.5.1.2 The tractor cannot roll after being disconnected.
- 3.5.1.3 The tractor has stopped, the parking brake is applied and the starter key is removed.
- 3.5.1.4 The machine has come to a complete stop.
- 3.5.1.5 Children are never allowed to play close to the machine.

### 3.5.2 Storing The Machine

If the machine is due to be left unused for a long period, it should be stored in a place where it will not be exposed to the elements and should be protected to avoid deterioration.

Before storing, we recommend cleaning the whole machine thoroughly and suitably lubricating all mechanical parts to protect them from rust.

Make sure storage temperature is in the range 0°C to 50°C.

Before mothballing the machine, it is advisable to proceed as follows:

- 3.5.2.1 Clear any shredding debris off the rotors and blades;
- 3.5.2.2 Clean the machine thoroughly;
- 3.5.2.3 Perform a general inspection, looking out for possible damage to the structure and areas where paintwork has been scraped off or worn away; make sure the original safety decals are attached in their relevant positions and are intact and legible;
- 3.5.2.4 Securely tighten all screws and bolts, especially those fastening the blades; see Section 6.9.
- 3.5.2.5 Thoroughly grease any parts that usually require this kind of attention, smear all non-painted parts with lubricant; lastly, protect all equipment with a plastic tarpaulin, while making sure there is sufficient ventilation. Once you have finished this treatment, store the equipment in a dry place;
- 3.5.2.6 Where possible, store the machine indoors or under shelter, on a level, stable surface.
- 3.5.2.7 When carried out with due care, this procedure will ensure the equipment is in full working order and in a perfect state of repair when the time comes to put it back into operation.
- 3.5.2.8 Place the machine in the transport position, to best protect the hydraulic ram from corrosion. See Section 3.3.1 for guidance on how to do this.

### 3.5.3 Removing The Machine From Packing Or Longer Term Storage

Before using the machine for the first time, or when it has not been used for long periods, proceed as follows:

- 3.5.3.1 Make sure the machine has not been damaged;
- 3.5.3.2 Make sure mechanical parts are in a good state of repair and not rusted;
- 3.5.3.3 Check the blades for wear;
- 3.5.3.4 Thoroughly grease all moving parts;
- 3.5.3.5 Make sure all guards are correctly fitted.
- 3.5.3.6 Inspect the condition of the hydraulic hoses and check for wear. If they have deteriorated (or at least every 5 years), have them replaced.



## 4 Use Of The Machine

### 4.1 Before Connecting To The Tractor And Using The Machine



**WARNING!** Ensure that all operators have read and thoroughly understood all the safety procedures. For further information refer to the relevant sections of this manual.



**WARNING!** When connecting the machine to a tractor there is a risk of personal injury. Failure to follow the safety instructions could result in serious injuries to either yourself or others.

Therefore, when connecting the machine and the tractor you should:

- 4.1.1.1 Make sure the tractor cannot roll.
- 4.1.1.2 Make sure that the tractor and the machine have compatible category attachments.
- 4.1.1.3 Never stand between the tractor and the machine during attachment.
- 4.1.1.4 Use the hydraulic three point linkage slowly and carefully.
- 4.1.1.5 When carrying out an attachment you must make sure that the machine is placed on a firm and level surface.

### 4.2 Connecting To A Tractor



**WARNING!** The tractor must have an adequate weight and capacity to lift and carry the machine. Local legislation governing this ratio must be observed. The correct ratio between tractor and machine ensures correct braking functions and manoeuvrability. An incorrect ratio between tractor and machine can be dangerous.

The pasture topper is connected to the tractor on the 3 point hitch, and will accept only CAT 2 linkages. The tractor must also be equipped with a levelling box. If the tractor is fitted with a swinging drawbar, this should be set in its shortest mode or removed completely.

The tractor should be equipped with a six-splined P.T.O. and revolve at 540 rpm.

The tractor should be equipped with a double acting spool valve with a minimum flow of 30 litres/min.

#### 4.2.1 Connecting To A Tractor

- 4.2.1.1 Remove the tractor drawbar, or position it to one side so it does not foul on the P.T.O. shaft; see Figure 4.1.
- 4.2.1.2 Remove the two Cat II link pins, and the Top Link Pin; see Figure 4.2.
- 4.2.1.3 Reverse the tractor up to the machine, and adjust the lift arm height to align with the pin holes.
- 4.2.1.4 Turn off the tractor, apply the parking brake and remove the starter key.
- 4.2.1.5 Attach the lower lift arms to the machine using the Cat II pins; see Figure 4.3. Adjust and attach the Left Hand Lift Arm using the tractor Levelling Box if necessary. Refit the lynch pins.
- 4.2.1.6 Attach the Tractor Top Link to the single hole in the top of the Headstock; see Figure 4.4.
- 4.2.1.7 Start the tractor and raise the machine on the lift arms until the gearbox P.T.O. shaft of the machine and the tractor P.T.O. are at their shortest distance apart.
- 4.2.1.8 Turn off the tractor, apply the parking brake and remove the starter key.
- 4.2.1.9 Adjust the tractor stabiliser chains (or bars) so there is no lateral movement when the machine is in the raised position; see Figure 4.5.
- 4.2.1.10 Remove the Parking Leg securing Pin, lift Parking Leg, and replace pin in leg lower hole so that Parking Leg clears ground; see Figure 4.6.
- 4.2.1.11 Connect the end of the P.T.O. shaft that has the shear bolt, to the machine and secure the P.T.O. guard restraining chain to the machine; see Figure 4.7.
- 4.2.1.12 Connect the other end of the shaft to the tractor and secure the P.T.O. guard chain; see Figure 4.8.
- 4.2.1.13 On the first occasion when the machine is fitted to a tractor the P.T.O. shaft may need adjusting in length. Refer to the P.T.O. shaft manufacturer's instructions, supplied with the shaft, for details of how



this should be done. Bear in mind that using the machine on another tractor at a later date may necessitate further adjustments or the fitting of a new, longer shaft.

4.2.1.14 Connect the Hydraulic Hose fittings to the Tractor Spool Valve; see Figure 4.9.

4.2.1.15 Unpack the Transport Latch Pull Rope, and attach it to a suitable point on the tractor, that will be in easy reach of the operator from the tractor seat; see Figure 4.10. Ensure the rope will not foul or catch on the PTO shaft, the tractor wheels, the tractor lift arms, or any other moving part.



**Figure 4.1**



**Figure 4.2**



**Figure 4.3**



**Figure 4.4**



**Figure 4.5**



**Figure 4.6**



Figure 4.7



Figure 4.8

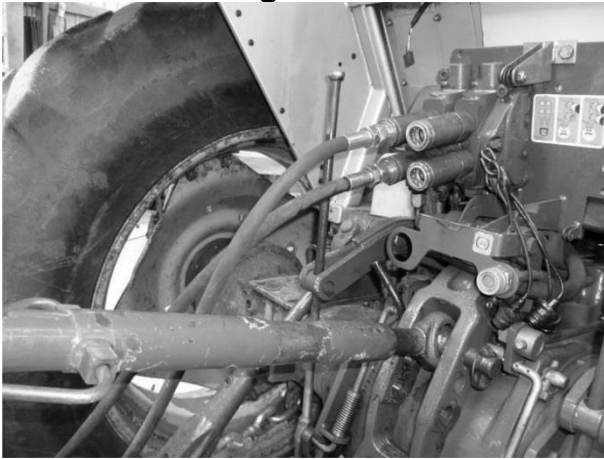


Figure 4.9



Figure 4.10

### 4.3 Moving From Transport To Working Position



**WARNING!** Ensure that the machine and the P.T.O. shaft have been correctly connected to the tractor. For further information; see Section 4.2.



**WARNING!** Ensure that the immediate surroundings will not cause a restriction to the moving and checking of the machine.



**WARNING!** Ensure there are no children, bystanders or animals in the immediate area when the machine is moved.



Figure 4.11



Figure 4.12

- 4.3.1.1 With the machine raised off the ground 100mm, pull the Transport Latch release rope. At the same time, carefully operate the tractor hydraulic spool valve so that the hydraulic ram will pull the swing arm through 90 degrees' see Figure 4.11.
- 4.3.1.2 Lower the machine so that the skids are on the ground; see Figure 4.12. Apply tractor hand brake, and turn off tractor engine.
- 4.3.1.3 Remove the Top Link Pin from the single hole on the headstock, and reposition top link with the pin in the slot directly below; see Figure 4.12. This will give better floatation when operating the machine.
- 4.3.1.4 To operate the machine with the hydraulic safety breakback feature, the hydraulic spool lever should be in "float" position. This gives free flow of oil return to the tractor should an obstacle be encountered.



**WARNING!** Failure to operate without free float return to the tractor may result in serious damage to your machine.

The procedure for moving the machine from working position to transport position is the reverse of the above procedure. The Transport Latch will automatically lock the swing arm in position when the ram is fully extended.



**WARNING!** At no time should the machine be moved from working to transport position whilst the PTO is engaged, or the machine is running down. Ensure the rotors are at a complete standstill before moving swing arm.

Ignoring this guidance is likely to cause serious driveline damage.

## 4.4 Running The Machine For The First Time



**WARNING!** Ensure that the machine and the P.T.O. shaft have been correctly connected to the tractor. For further information; see Section 4.2.



**WARNING!** Ensure that the machine is positioned correctly in the working position. For further information; see Section 4.3.



**WARNING!** Ensure that the immediate surroundings will not cause a restriction to the run-up and checking of the machine.



**WARNING!** Ensure there are no children, bystanders or animals in the immediate area when the machine is run for the first time.

After the machine has been attached to the tractor for the first time, it should be tested to ensure it operates correctly, before putting it to work.

Use the following procedure when running the machine for the first time.

- 4.4.1.1 Lower the machine so the skids are resting on the ground, and the machine is level.
- 4.4.1.2 With the tractor at low revs, gently engage the P.T.O. until the machine is running.
- 4.4.1.3 Carefully increase the P.T.O. speed to 540 rpm.
- 4.4.1.4 Check that the machine runs smoothly and without vibration.
- 4.4.1.5 Raise the machine to the top of the lift arm travel.
- 4.4.1.6 Check again that the machine runs smoothly and without vibration.
- 4.4.1.7 Lower the machine to ground level again.
- 4.4.1.8 Gently reduce the tractor revs to idle, and disengage the P.T.O.
- 4.4.1.9 Apply the parking brake and stop the tractor.

If any faults are identified; refer to Section 7. If a solution is still not found, consult your local Spearhead Machinery dealer for assistance.

## 4.5 Starting Work

- 4.5.1.1 Upon arriving at the location to be topped, lower the machine fully so that both skids are firmly on the ground.



**Figure 4.13**

- 4.5.1.2 Lift the machine so it clears the ground by approximately 100mm, gently engage the P.T.O. and run at tick-over speed.
- 4.5.1.3 Lower the machine to the ground, and increase the P.T.O. speed to 540 rpm.
- 4.5.1.4 Select a forward speed that is suitable for the ground conditions and the type of material to be cut.
- 4.5.1.5 Check the machine is floating correctly. For further information refer to Section 4.2.

NOTE: When turning at headlands, lift the machine so the skids just clear the ground. This will reduce field damage in wet conditions.

- 4.5.1.6 If the stubble height is not correct, adjust the skid height accordingly. For further information refer to Section 5.1.

## 4.6 Stopping The Machine

When stopping the machine, use the following procedure:

- 4.6.1.1 Reduce forward speed and bring the tractor to a halt.
- 4.6.1.2 Keep the machine lowered onto the ground.
- 4.6.1.3 Reduce engine revs to idle speed, and disengage the P.T.O.
- 4.6.1.4 When the rotor has stopped turning, raise the machine and move the swing arm to the transport position.

## 4.7 Disconnecting From A Tractor



**WARNING!** There is an increased risk of injury when disconnecting the machine from the tractor. Before disconnecting the machine, make sure that:

- 4.7.1.1 The machine is placed upon a firm and level surface.
- 4.7.1.2 The tractor cannot roll after being disconnected.
- 4.7.1.3 The tractor has stopped, the parking brake is applied and the starter key is removed.
- 4.7.1.4 The machine has come to a complete stop before commencing work.
- 4.7.1.5 Children are never allowed to play close to the machine.

Disconnection is the reverse of attachment. Refer to 'Connecting to a Tractor'; see Section 4.2.



## 5 Machine Adjustments



**WARNING!** Before working on any piece of attached machinery, ensure that the tractor engine is turned off and the starter key removed to prevent anyone else from starting the tractor while it is being worked on.



**WARNING!** Always park on a suitable firm, level surface with the parking brake applied, and ensure the machine has come to a complete stop before commencing work.



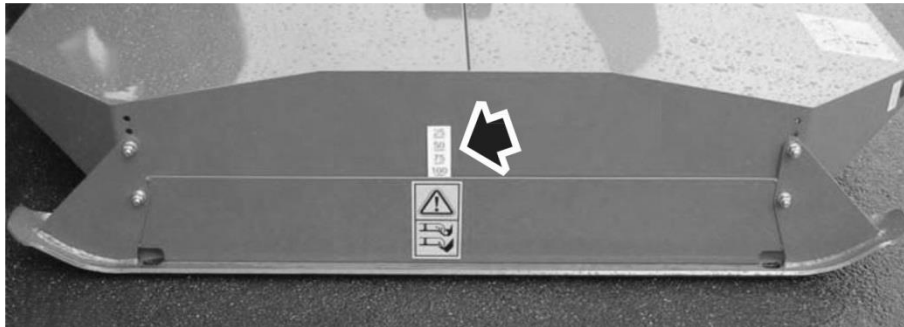
**WARNING!** Before attempting to access the underside of the machine, ensure it is adequately and safely supported. Do not rely on the tractor's hydraulics. Use safety supports that have a minimum Safe Working Load (SWL) of 1.5 tonnes.

### 5.1 Cutting Height Adjustment

The cutting height of the pasture topper can be adjusted to cut at heights from 30mm to 150mm. This is achieved by moving the bolt-on skids at each side of the machine; see Figure 5.1.



**WARNING!** Use assistance when removing the skids. They are heavy and may cause injury.



**Figure 5.1**

To adjust the cutting height:

- 5.1.1.1 Raise the machine on the tractor lift arms and support it on safety supports.
- 5.1.1.2 Remove the nuts, bolts and washers securing the skid to the machine.
- 5.1.1.3 Reposition the skid to the new desired position; use the cutting height decals on the side of the machine (arrowed) as a guide.
- 5.1.1.4 Fit and tighten all nuts and bolts securely; see Section 6.14.
- 5.1.1.5 Repeat the process for the other skid, ensuring that both skids are at the same height setting.
- 5.1.1.6 Raise the machine on the lift arms and remove the safety supports.

Re-try the machine and re-adjust the skid height if the cutting height is still not acceptable.

## 5.2 Shear Bolt Protection

The P.T.O. shaft is fitted with a shear bolt overload protection to prevent damage to the machine if an obstacle is encountered during operation.



**Figure 5.3**

The shear bolt is located at the machine end of the P.T.O. shaft. The following procedure should be followed when replacing or inspecting the shear bolt.

- 5.2.1.1 Disengage the P.T.O.
- 5.2.1.2 Raise the machine on the lift arms and move to an area with a firm, level surface.
- 5.2.1.3 Lower the machine and stop the tractor.
- 5.2.1.4 Apply the parking brake, and remove the starter key.
- 5.2.1.5 Release the guard restraining chains and disconnect the P.T.O. shaft from the tractor end first, and then from the machine. This will give access to the shear bolt for inspection and replacement.
- 5.2.1.6 Inspect the machine, shaft and ground for possible causes of failure. Check that the blade rotates freely and does not foul on the body.
- 5.2.1.7 Remove any bolt remains from the universal joint, and replace the shear bolt with the correct grade of new bolt (four spare shear bolts and nuts are fitted to the top of the A-frame). Ensure the bolt is correctly tightened; see 'Torque Settings', Section 6.14.



**CAUTION!** Only use the size and grade of shear bolt as supplied by Spearhead Machinery. For further information refer to Section 8.

- 5.2.1.8 Connect the shaft to the machine and then the tractor and attach the guard restraining chains.

Re-start the machine as described in Section 4.3, and check that it operates correctly.

## 6 Maintenance



**DANGER!** If you experience trouble, you must switch off the tractor, remove the ignition key and get out of the tractor to determine the extent of the problem and, where necessary, perform any work required on the machine.

Remember all maintenance work must be carried out by trained and qualified personnel with the machine stopped. Maintenance and repair work must not be performed outdoors, and should instead be carried out in a suitably equipped workshop.



**WARNING!** Before performing any maintenance work, you must switch off the tractor, remove the keys (and keep them in a safe place) and disconnect the P.T.O shaft.



**WARNING!** Waste oil qualifies as hazardous waste according to current law and, as such, must not be released into the environment; it should be recovered and disposed of through suitable collection centres.

Consequently, contact your nearest environment agency concerned with the collection and disposal of waste oil before commencing any maintenance work, you must follow the procedure below:

- 6.1.1.1 While maintenance work is in progress, the machine must be positioned on level solid ground;
- 6.1.1.2 Switch off the tractor's engine, apply the parking brake and remove the key from the ignition;
- 6.1.1.3 Always use suitable Personal Protective Equipment (safety footwear, overalls, work gloves and dust mask); see Section 2.4;
- 6.1.1.4 Take all accident-prevention precautions prescribed for the job at hand;
- 6.1.1.5 If you are using compressed air to clean the machine, you must wear suitable eye protection;
- 6.1.1.6 Do not perform repairs you are not familiar with. Always follow the instructions and, if none are available, seek advice from the supplier or expert personnel;
- 6.1.1.7 Do not use any lifting points other than those provided for this purpose; see Section 3.1;
- 6.1.1.8 Make sure the hoisting device chosen is suitable for the job at hand in compliance with safety standards. They must have a minimum Safe Working Load (SWL) of 1.5 tonnes;
- 6.1.1.9 Do not keep the tractor's engine running indoors where there is no ventilation system to remove harmful exhaust gases that build up in the air;
- 6.1.1.10 Avoid prolonged and repeated contact with fuels/lubricants/fluids on the skin as they could cause skin disorders or other syndromes;
- 6.1.1.11 Do not swallow fuels/lubricants/fluids. In case of accidental contact with eyes, flush the affected part with plenty of water;
- 6.1.1.12 Take extra care around oil/emptied fluid, which can be very hot;
- 6.1.1.13 Do not perform welding indoors or anywhere without sufficient ventilation;
- 6.1.1.14 Do not perform welding on or around painted surfaces to avoid the release of toxic vapours. Remove paint with suitable products, then wash the surfaces and allow them to dry;
- 6.1.1.15 Vent pressure from circuits before performing any work on them;
- 6.1.1.16 Escaping fluid under pressure can penetrate the skin and eyes with extremely serious consequences.

### 6.2 Lubricating Oil Precautions



**WARNING!** Avoid excessive skin contact with used oil. Used oil contains potentially harmful contaminants which may cause skin cancer or other serious skin disorders.



**WARNING!** Waste oil qualifies as hazardous waste according to current law and, as such, must not be released into the environment; it should be recovered and disposed of through suitable collection centres.

Consequently, contact your nearest environment agency concerned with the collection and disposal of waste oil before commencing any maintenance work



## 6.3 Maintenance Work That Can Be Performed By The Operator

The work described in the following points does not require any special expertise.

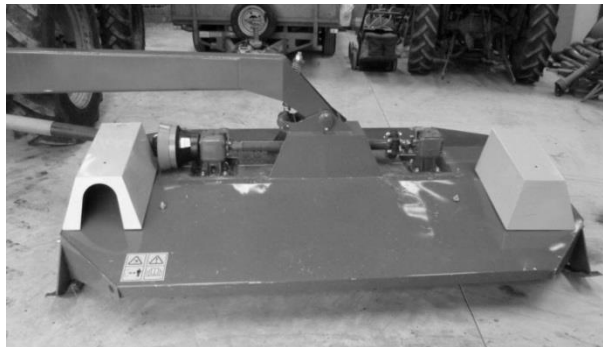
- 6.3.1.1 The operator must be familiar with the procedures and follow the relevant instructions carefully, and must put the machine out of service first.
- 6.3.1.2 Routine checks and maintenance work must be performed at the stated intervals following the procedures given and are the responsibility of the operator; see Section 6.11.
- 6.3.1.3 Failure to comply with maintenance rules and intervals has a negative effect on machine operation and its service life and, consequently, shall void the warranty.
- 6.3.1.4 Perform maintenance at shorter intervals when working under demanding operating conditions (frequent stopping and starting, lengthy winter season, e.t.c).

## 6.4 P.T.O Shaft

Refer to the manufacturer's instructions, (supplied with the shaft) to adjust or service the P.T.O. shaft.

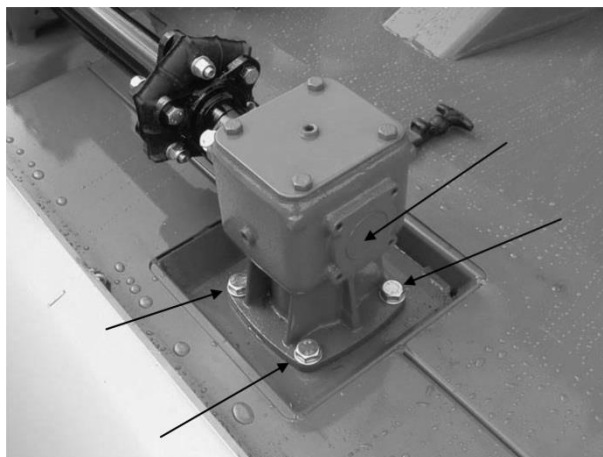
## 6.5 Rotor Gearboxes

NOTE: The Rotor gearboxes are housed underneath the top covers. For access, unscrew the guard fixing bolt on top of the guard, and remove each guard.



**Figure 6.1**

### 6.5.1 Tightening Outer Gearbox Fixing Bolts



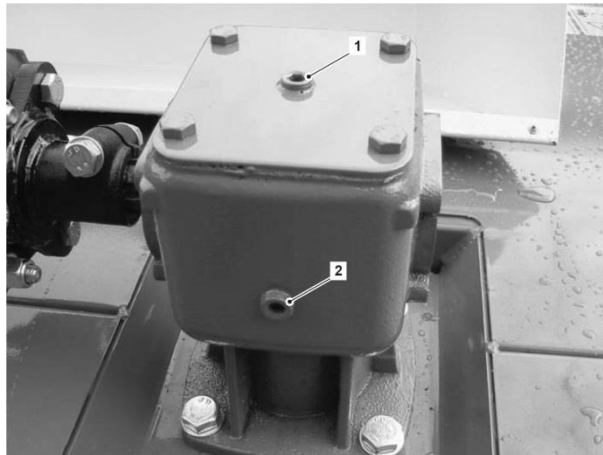
RH gearbox shown, LH similar

**Figure 6.2**

- 6.5.1.1 Check and tighten both outer gearboxes' mounting nuts and bolts (arrowed). Refer to 'Specific Torque Settings', Section 6.14.

## 6.5.2 Rotor Gearbox Oil Level Check And Top-Up

Before checking the oil level, ensure that the machine is positioned on a firm and level surface.



**Figure 6.3**

ITEM NO.	DESCRIPTION.
1	Oil Filler Plug
2	Oil Level Plug

- 6.5.2.1 Remove the oil level plug on the side of the gearbox, and ensure the oil is filled up to that level; see Figure 6.3 (2).
- 6.5.2.2 To top up the gearbox oil level, remove the oil filler plug and carefully top up with oil until the oil starts to flow from the level plug; see Figure 6.3 (1).
- 6.5.2.3 Use only the recommended grade of oil.
- 6.5.2.4 For further information refer to 'Recommended Lubricants', Section 6.13.

## 6.5.3 Rotor Gearbox Oil Drain And Refill

- 6.5.3.1 To drain the oil from the gearbox, it is necessary to remove the gearbox from the machine.
- 6.5.3.2 Remove both the oil filler and level plugs; see Figure 6.3 and then invert the gearbox over a suitable container and allow the oil to drain.
- 6.5.3.3 Dispose of the used oil and protect yourself against it in accordance with the guidelines set out in Section 6.2.
- 6.5.3.4 Avoid excessive skin contact with used lubricating oils and always adhere to the health protection precautions.
- 6.5.3.5 Avoid prolonged and repeated contact with oils, particularly used engine oils.
- 6.5.3.6 Wear protective clothing, including impervious gloves where practicable.
- 6.5.3.7 Avoid contaminating clothes with oil (particularly those next to the skin). Overalls must be cleaned regularly. Discard heavily soiled clothing and oil impregnated footwear.
- 6.5.3.8 First aid treatment should be obtained immediately for open cuts and wounds.
- 6.5.3.9 Apply barrier creams before each work period, to help prevent lubricating oil from contaminating the skin.
- 6.5.3.10 Use moisturisers after cleaning; preparations containing lanolin help replace the skin's natural oils which have been removed.
- 6.5.3.11 If skin disorders develop, obtain medical advice without delay.
- 6.5.3.12 Wear eye protection (e.g. goggles or a face shield, if there is a risk of eye contamination. Eye wash facilities should be provided in close vicinity of the work area.

## 6.5.4 Rotor Gearbox Removal



**Figure 6.4**

ITEM NO.	DESCRIPTION.
1	RH Outer Gearbox
2	Short Driveshaft Clamping Bolt
3	Flexible Coupling
4	Long Driveshaft

- 6.5.4.1 Remove the six flexible coupling mounting bolts.
- 6.5.4.2 Remove the relevant short driveshaft clamping bolt (2).
- 6.5.4.3 Slide the long driveshaft (4) towards the opposite rotor gearbox.
- 6.5.4.4 Slide the short driveshaft towards the relevant outer gearbox.
- 6.5.4.5 Remove the flexible coupling (3) and both driveshaft's and store them safely.
- 6.5.4.6 Lift and support the machine on safety supports.
- 6.5.4.7 With assistance, support the blade carrier, remove the split pin and rotor castle nut and remove the rotor from the splined gearbox output shaft. Refer to Figure 6.9.
- 6.5.4.8 With assistance, remove the four nuts and mounting bolts securing the gearbox to the machine.
- 6.5.4.9 Remove the gearbox (1).
- 6.5.4.10 Replacement is the reverse of removal, but tighten the mounting bolts and castle nut as specified in 'Specific Torque Settings'; Section 6.14.



**WARNING!** Ensure that the blade carriers and blades are at 90° to each other after removing or replacing drive couplings and/or rotor hubs.

## 6.6 Input Gearbox

### 6.6.1 Check And Tighten Input Gearbox Fixing Bolts

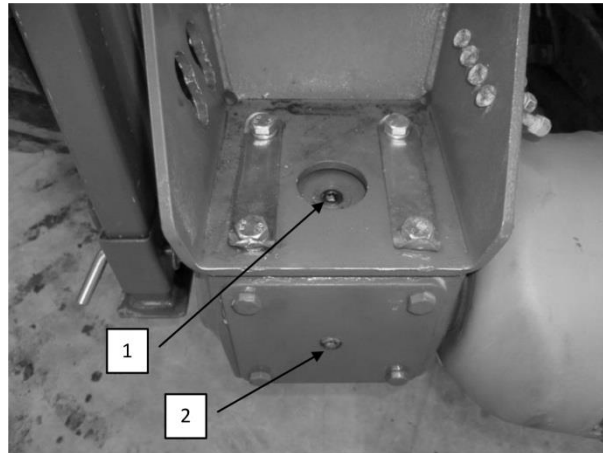


**Figure 6.5**

- 6.6.1.1 Check and tighten the gearbox mounting nuts and bolts (arrowed). Refer to 'Specific Torque Settings', Section 6.14.

## 6.6.2 Input Gearbox Oil Level Check And Top-Up

Before checking the oil level, ensure that the machine is positioned on a firm and level surface.

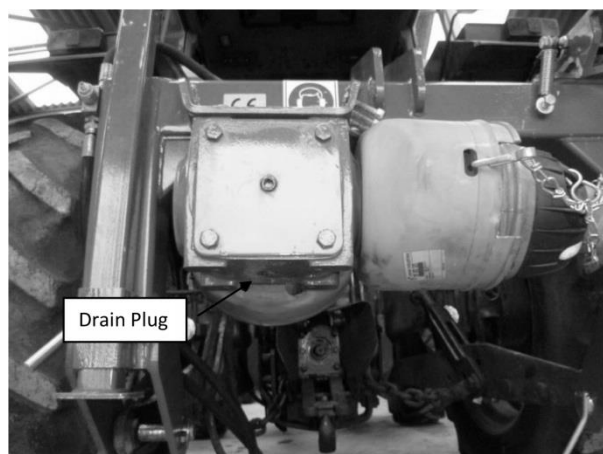


**Figure 6.6**

ITEM NO.	DESCRIPTION.
1	Oil Filler Plug
2	Oil Level Plug

- 6.6.2.1 Remove the oil level plug on the rear of the gearbox (2), and ensure the oil is filled up to that level.  
 6.6.2.2 To top up the gearbox oil level, remove the oil filler plug (1) and carefully top up with oil until the oil starts to flow from the level plug (2).  
 6.6.2.3 Use only the recommended grade of oil.  
 6.6.2.4 For further information refer to 'Recommended Lubricants'; see Section 6.13.

## 6.6.3 Input Gearbox Oil Drain And Refill

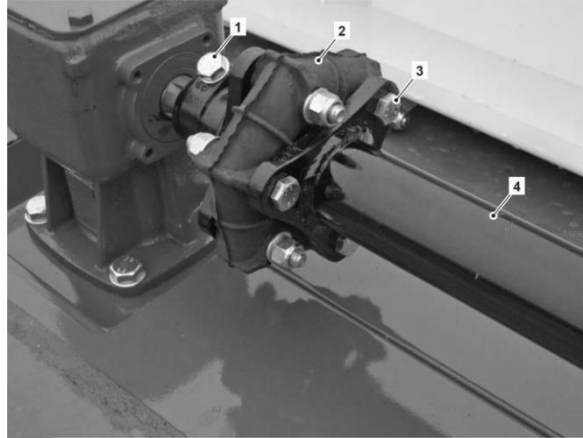


**Figure 6.7**

To drain the oil from the central gearbox, it is not necessary to remove the gearbox from the machine.

- 6.6.3.1 Lift and support the machine on safety supports with a SWL of at least 1.5 tonnes.  
 6.6.3.2 Remove both the oil filler plug and the drain plug, see Figure 6.6 and Figure 6.7, over a suitable container and allow the oil to drain.  
 6.6.3.3 Dispose of the used oil and protect yourself against it in accordance with the guidelines set out in Section 6.2.

## 6.7 Flexible Couplings



RH flexible coupling shown, LH similar

**Figure 6.8**

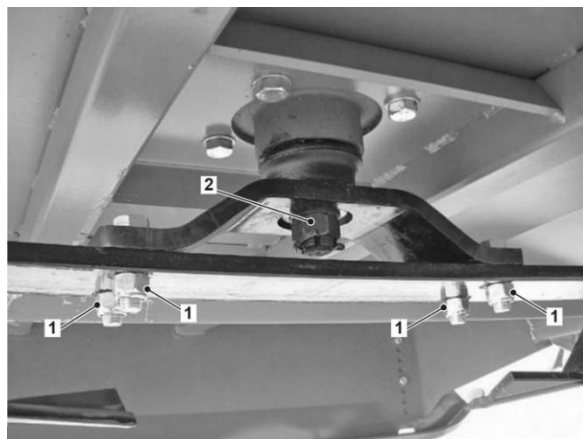
ITEM NO.	DESCRIPTION.
1	Short Driveshaft Clamp Bolt (2 off)
2	Flexible Coupling (2 off)
3	Flexible Coupling Mounting Bolts (12 off)
4	Long Driveshaft (2 off)

- 6.7.1.1 Check each flexible coupling (2) for damage and cracks. Replace if any damage is found.
- 6.7.1.2 Check the tightness of the short driveshaft clamping bolt (1) and coupling mounting bolts (3) to the correct torque.
- 6.7.1.3 Refer to 'Torque Settings'; see Section 6.14.
- 6.7.1.4 Repeat with the other drive coupling.



**WARNING!** Ensure that the blade carriers and blades are at 90° to each other after removing or replacing drive couplings.

## 6.8 Blade Carrier



LH blade carrier shown, RH similar

**Figure 6.9**

ITEM NO.	DESCRIPTION.
1	Blade carrier mounting bolts and nuts
2	Rotor hub castle nut

- 6.8.1.1 Check the rotor hub for slack. Some settlement may occur after the first hours of working. Re-tighten the castle nut (2) one quarter of a turn at a time, and back off until the split pin can be fitted. Repeat until the slackness is removed.
- 6.8.1.2 Check the blade carrier mounting bolts for tightness. Refer to 'Specific Torque Settings'; Section 6.14.

## 6.9 Blades

The blades must be inspected visually for wear each time before starting work. Replace blades when you notice an increase in power demand or see that material is not being cut perfectly. Using the machine with blades that are not sharp will have a negative effect on the quality of the work.

### 6.9.1 Replacing the blades

When the blades wear at a different rate or some are broken, they must be replaced immediately. The new blades should be mounted in the identical position of the one to be replaced and should be of equal weight and length in order not to jeopardise the balance of the whole machine.



**WARNING!** When a blade needs replacing, it is best to replace the whole series. Failure to fit original tools may cause the machine to vibrate abnormally.



**WARNING!** When replacing blades with the machine lifted off the ground, do not rely on the tractor's hydraulic lift to hold it up: wedge mechanical props or supporting trestles between the machine and the ground to stop the machine dropping accidentally and posing a serious hazard.

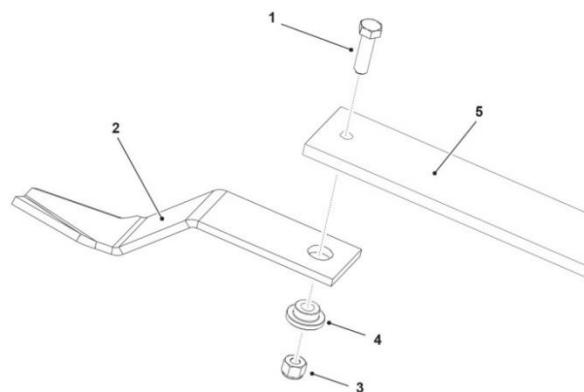


**WARNING!** Whatever the case, the cutting edge of the blade should face in the direction the rotor rotates.

The tractor should be switched off and the handbrake applied during blade replacement and the ignition key should be with the operator. Blades must be removed and fitted, as illustrated in the figures below, by inserting the bolt through the bush and tool, with the two washers threaded on either side, and fastening it with the relevant nut, see Figure 6.9.

The cutting blades are mounted in hardened bushes and are free-swinging to reduce shock load and damage to the transmission; see Figure 6.9 (4).

NOTE: The cutting blades on the left and right blade carriers are not interchangeable.



LH rotor blade shown, RH similar

**Figure 6.10**

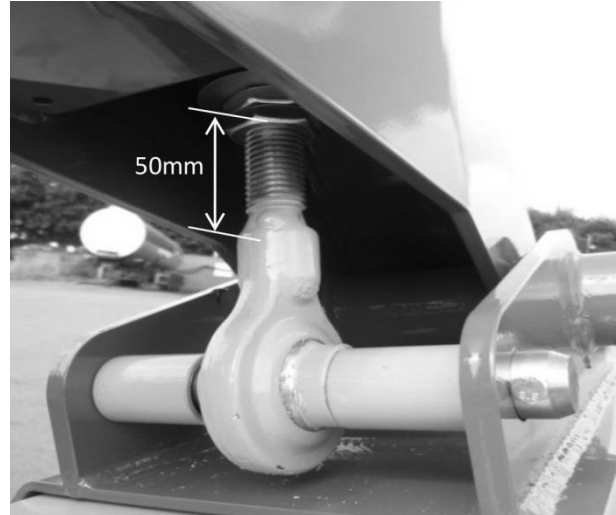
ITEM NO.	DESCRIPTION.
1	Retaining Bolt
2	Blade
3	Retaining Nut
4	Hardening Bush
5	Blade Carrier

- 6.9.1.1 If replacing the blades, remove the retaining bolt (1) and nut (3) and dismantle the blade (2) and bush (4).
- 6.9.1.2 Replace the blade (2) and/or the bush (4) and reassemble to the carrier (5) with a new nut (3) and bolt (1).
- 6.9.1.3 Tighten the retaining bolt (1) and nut (3). Refer to 'Specific Torque Settings'; Section 6.14.

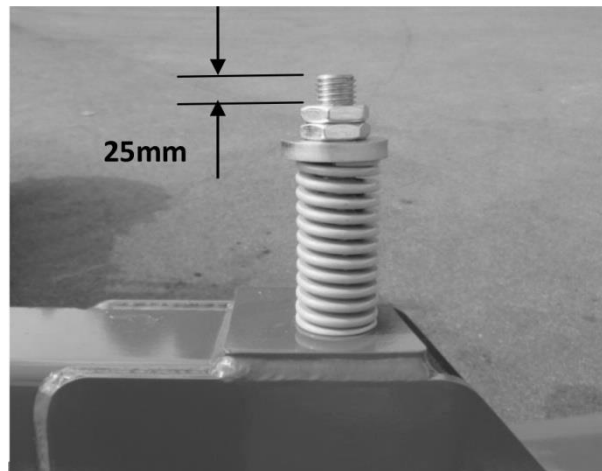
## 6.10 Deck Suspension Adjustment



**Figure 6.11**



**Figure 6.12**



**Figure 6.13**

- 6.10.1.1 Attach Topper to Tractor, and lift clear off the ground, allowing deck to pivot freely; see Figure 6.11.
- 6.10.1.2 Remove PTO shaft between gearbox and deck.
- 6.10.1.3 Slacken Spring Assembly at the Lock nuts above and below the arm.
- 6.10.1.4 Adjust bottom lock nut position to a distance of 50mm measured from the shank of the ball joint to the underside of the locknut; see Figure 6.12. Tighten the lock nut.
- 6.10.1.5 Adjust top lock nut position to a distance of 25mm measured from the end of thread to the first lock nut; see Figure 6.13. Tighten lock nut.

## 6.11 Scheduled Maintenance Table

Component		Interval					
		1st Hour	After 10 Hours	Weekly	Every 2 Weeks	Monthly	Annually
<b>P.T.O. Shaft</b>	Refer to the supplied P.T.O. shaft manual for guidance on lubrication						X
<b>Gearbox</b>	Check gearbox mounting bolts, see: <ul style="list-style-type: none"> <li>Section 6.5.1 (Input)</li> <li>Section 6.6.1 (Rotor)</li> </ul>	X		X			X
	Check gearbox oil level, see: <ul style="list-style-type: none"> <li>Section 6.5.2 (Input)</li> <li>Section 6.6.2 (Rotor)</li> </ul>		X		X		X
	Change gearbox oil <ul style="list-style-type: none"> <li>Section 6.5.3 (Input)</li> <li>Section 6.6.3 (Rotor)</li> </ul>						X
<b>Blade carrier</b>	Check mounting bolts, see Section 6.8.	X		X			X
<b>Blades</b>	Check for damage		X	X			X
	Check bushes for wear, see Section 6.9.		X			X	X
<b>Flexible Couplings</b>	Check flexible couplings, see Section 6.7.			X			X
<b>Other</b>	Check all other fasteners.					X	X

## 6.12 Cleaning The Machine

- Clean the machine at regular intervals, using a water blaster, focussing above all on any flammable materials left on the machine. Make sure there is no straw, hay or flammable material left on any parts of the machine that get hot.
- Where necessary, use mild biodegradable detergents, complying with pollution prevention regulations when it comes to disposing of the waste cleaning water.
- Dry the machine immediately after washing.
- Do not use solvents, benzene or diesel oil, which could cause early deterioration of the gaskets and other plastic elements as well as be a risk for lubrication of the machine in general.



**WARNING!** Only carry out cleaning operations with the machine disconnected from the tractor. Also simple cleaning away of any residues of vegetation must always be carried out with the tractor engine switched off and the hand brake on, keeping the ignition key in a pocket.



## 6.13 Recommended Lubricants

Supplier	Gearbox (es)	Grease Nipples	Roller Chains
BP	Energear Hypo 80W-90 EP	Energrease L2M	Penetrating oil
Castrol	Multitrax 80W/140 EPX 80W/90 EPX 85W/140	Castrol MS 3 Castrol APS 2	Chain grease
STAT OIL	Gearway G4 80W-90	MP Grease (Moly)	Super oil for chain saws
Q8	Q 8 T 55 80W/90	Q 8 Rembrandt Moly S2	Q 8 Giotto/Q 8 Wagner 220
Mobil Oil	Mobilube HD 80W/90	Mobilgrease Special	Mobilvactra No. 2
Shell	Spirax HD 80W/90	Retinax A	Malleus HDX
Texaco	Geartex EP-C 9-W/90	Molytex 2 Molytex EP 2	Way Lubricant
OK	OK Gearoil GL 5 80W/90	OK Molygrease	OK Compound 2
Hydro	Hypoid Gearoil 80W/90	Moly D Grease	Moly chain wheel grease

## 6.14 Torque Settings

### 6.14.1 General Torque Settings



**CAUTION!** This table refers to bolts without a torque setting specified above. Please check the “Specific Torque Settings” Section 6.14.2. Where a specific torque setting is given it should be used instead of the information below.

The figures shown are for the torque moment for bolts of normal metric thread quality 8.8 black and/or galvanised and ungreased when tightened on a smooth surface or a plain washer.

Thread Diameter (mm)	Nm + 10% - 0
5	6
6	10
8	26
10	52
12	90
14	144
16	225
20	436
22	594

### 6.14.2 Specific Torque Settings



**CAUTION!** This table refers to bolts that **MUST** be tightened to the figure shown. Where a specific torque setting is given it should be used instead of the information shown in the “General Torque Settings”; Section 6.14.1.

Fastener	Torque Setting (Nm)
P.T.O. shaft shear bolt	26
Outer gearbox mounting bolts	225
Central gearbox mounting bolts	90
Flexible coupling bolts	90
Blade carrier bolts	225
Cutting blade bolts	225
Rotor hub castle nut(s)	Refer to Section 6.9

## 7 Troubleshooting

The charts below are intended to help in diagnose and rectify any problems with your machine. If the problem persists, please consult your supplier, or contact Spearhead Machinery. See the Machine Identification page; Section 1.4.

### 7.1 Troubleshooting

PROBLEM	CAUSE	SOLUTION
Shear-bolt failure on start up	Tractor revs too high	Reduce revs to idle before engaging P.T.O.
	Incorrect shear bolt	Check the shear bolt is the correct grade and size.
Shear-bolt failure in operation	Obstacle encountered	Inspect ground for stones, stumps, etc. before replacing with the correct grade of bolt
Excessive vibration	Broken or missing blade	Check blades and replace with new if necessary
	Cracked or damaged flexible coupling	Check couplings and replace with new if necessary
Clashing blades	Incorrect blade timing	Check the blade timing is 90° out of phase and correct if necessary
Uneven stubble	Travelling too fast	Reduce forward speed
Ragged stubble	Blunt blades	Replace blades
Scalping ground	Skids set too low	Reset skid height
Excessive ground marking	Topper not following ground contours correctly	Check lower lift arm to lift arm bracket clearance. Adjust if necessary
Uncut material	Heavy crop	Reduce forward speed, or cut twice

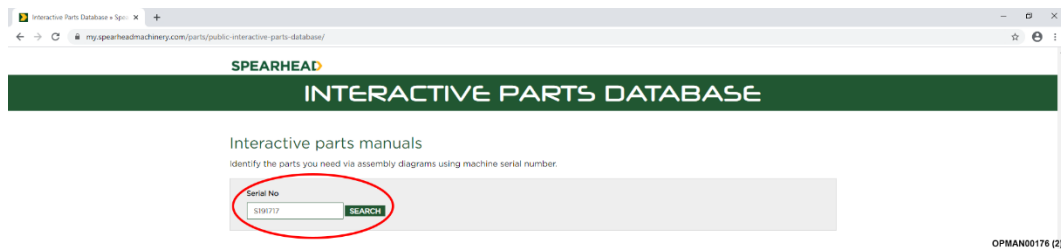


## 8 Spare Parts

### 8.1 How To Obtain The Correct Spare Part Numbers

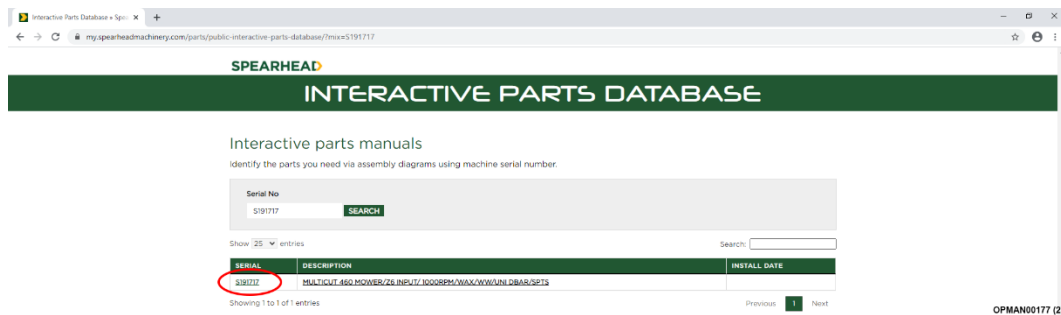
For correct part numbers; use the Spearhead interactive online parts books. These are available at <https://my.spearheadmachinery.com/parts/public-interactive-parts-database/>. You will need to enter the machine serial number; see Figure 1.7.

#### 8.1.1.1 Enter the serial number.



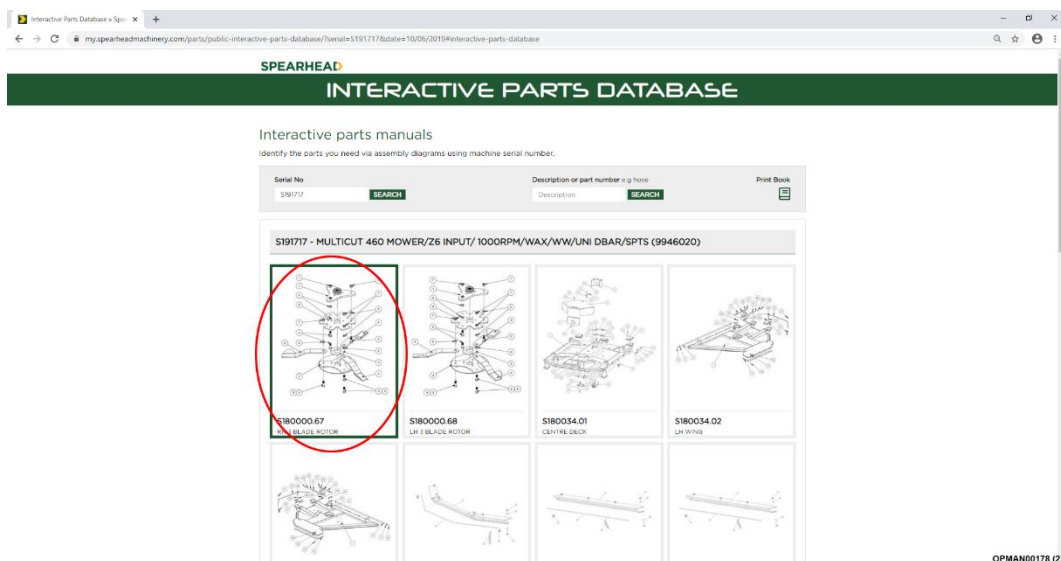
**Figure 7.1 – Type In Serial Number**

#### 8.1.1.2 After entering the serial number a specification for the machine will appear. Click on the serial number; see Figure 7.2.



**Figure 7.2 – Click On Serial Number**

#### 8.1.1.3 After clicking on the serial number a full parts breakdown, specific to the machine serial number will appear showing the various parts and assemblies of the machine. Click on the specific assembly picture required; see Figure 7.3.



**Figure 7.3 – Click On Assembly**

- 8.1.1.4 You will finally be presented with a full exploded parts breakdown for that particular assembly, giving part numbers and the quantities required; see Figure 7.4.

The screenshot displays the 'INTERACTIVE PARTS DATABASE' interface. It features a search bar with 'Serial No' and 'Description or part number' fields. Below the search bar is a table titled 'Print Part List and diagram' with the following data:

Ref	Part No	Description	QTY
1	1770602-342	CHIMBLADE CARRIER UPPER (100)	1
2	1770609	LOWER BLADE CARRIER (100)	1
3	1770604-3	SPACER	1
4	7770700	BLADE - RH C/W PIN 25	3
5	2770463	BOLT	6
6	7770707	BLADE BUSH	6
7	2770444	NUT	6
8	046053	CARRIER	1
9	2770464	WASHER	3

To the right of the table is an exploded view diagram of the assembly, with numbered callouts (1-9) corresponding to the parts in the table. The interface also includes a 'Print Book' button and a 'Serial No' field with the value '59177'.

Figure 7.4 – Exploded Parts Breakdown With Bill Of Materials

## 8.2 Spare Parts Ordering

It is important to note that when it comes to ordering replacement parts, that this can **only** be carried out through a Spearhead dealer. **Spearhead does not accept direct customer parts orders over email, fax or telephone.**

For guidance on finding your local Spearhead dealer; see Section 7.3.

## 8.3 Dealer Network

Spearhead has an extensive dealer network which can offer genuine replacement parts.

In order to make it easier to find your local Spearhead dealer, the Spearhead website has a Dealer Locator facility.

<http://www.spearheadmachinery.com/dealer-locator/>

To find your local Spearhead dealer enter your location or postcode into the “Your location” box and then press “Search”; see Figure 7.5.

The screenshot shows the 'DEALER LOCATOR' page on the Spearhead website. The search bar contains 'Evesham' and the search radius is set to '25 mi'. The results show 23 dealers. A map of the United Kingdom is displayed, with a green circle indicating the search radius centered on Evesham, Worcestershire. The map also shows other parts of the UK and neighboring countries like Ireland, Denmark, and Germany.

Figure 7.5 – Dealer Locator

# Notes

# Notes