Spearhead Machinery
Operator Instruction Manual For

SNIPER XHD (DUAL)

8.00m cut width, 1000 PTO input

Vegetation control hydraulic folding flail mower

8999193EN 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 491860.

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

Registration Verification

Model Type:		**Sniper XHD (Dual)**
Model Number:		**4.99_____**
Serial Numbers:	**Machine:**	**S_____**
	Cutting Implement:	**S_____**
	Other:	
Name Of Owner:		
Name Of Installing Dealer:		
Dealer Address:		
Dealer Signature:		
Date Of Delivery / Installation:		
Date Of Warranty Registration:		

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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Sniper XHD (dual) Flail Mower

This manual covers the Sniper XHD flail mower which is available in a 3.0m cutting width.

This heavy-duty machine can be front, or rear mounted by decoupling and reversing the headstock which provides added functionality at no extra cost. The Sniper XHD flail mower has a side shift ability to offset the position of the flail mower.

In order to cater for the front and rear mounting options, this machines can be run at 540rpm or 1000rpm. Providing the tractor front and rear drive rotation is consistent with the machine drive rotation, the two drive speeds can be achieved by swapping the drive pulleys over.

It is essential that the guards (including the roller) are always fitted during operation and that the machine is operated in line with the procedures and practices detailed in this manual.

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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Contents List

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1 General Information

1.1 Safety

This operation and maintenance manual is intented for the operator. It consists of operating and maintenance instructions for the machine.

It is mandatory to follow these instructions in order to prevent events which could endanger the operator's, bystanders and animals safety, apart from the correct functioning of the machine. In case of doubt do not experiment, call Spearhead Machinery after-sales service instead, or a specialized Spearhead Machinery dealer.

It is mandatory to read these instructions to understand the operating of the machine!

In the case of re-sale of the machine it is necessary to give these instructions to the new owner!

1.1.1 Warning Sign Descriptions

Very important information!

Technical warning!

Safety warning!

1.2 Purpose Of Use

Sniper 800 XHD (dual) is universal flail mower, designed mostly for mulching bigger agriculture and public areas. It is appropriate for mulching maize, oilseed rape and other crop residues after harvesting, grass and bushes (maximum 6 cm in diameter) on all green areas. Its strong construction is designed for intensive use.

1.3 Machine Delivery

1.3.1.1 The manufacturer can ensure normal operating of the machine only with use of original spare parts!

1.3.1.2 Spearhead Machinery is not responsible for any damage or injuries, if the user doesn't consider the operating and maintenance instructions in this book!

1.3.1.3 Spearhead Machinery is not responsible for any damage or injuries due to improper use of the machine!

After receiving the machine it is necessary to check that the machine has not been damaged during transport and that it is equipped with all standard and additional equipment (if ordered).

Spearhead Machinery does not accept any responsibility in the case of:

1.3.1.4 Incorrectly maneuvring the machine.
1.3.1.5 Improper maintenance.
1.3.1.6 Unauthorized repairing or modifications on the machine or use of non-genuine spare parts.
1.3.1.7 Not respecting these rules.
1.3.1.8 Overloading of the machine exceeding its technical, operating capabilities and requirements (see Table 2).

1.4 Identification Of The Machine

Each machine is equipped with a serial plate; see Figure 1 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.
12. Product Group Code.

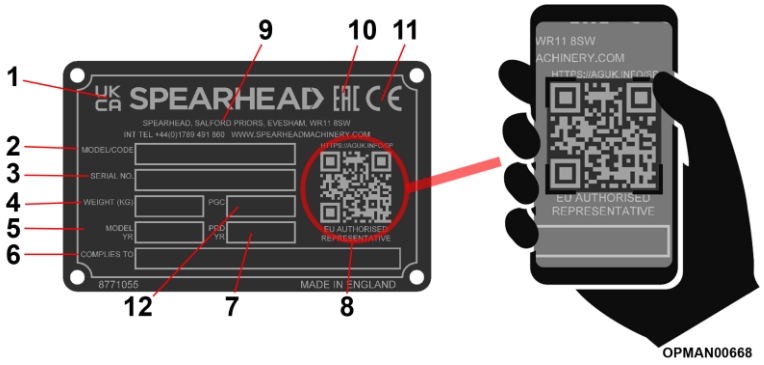

Figure 1 – Serial Plate

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 1.5) using a suitable QR scanning App, you can find details for Spearhead Machinery authorised representatives for its various territories.

2 Technical Data

2.1 General Arrangement

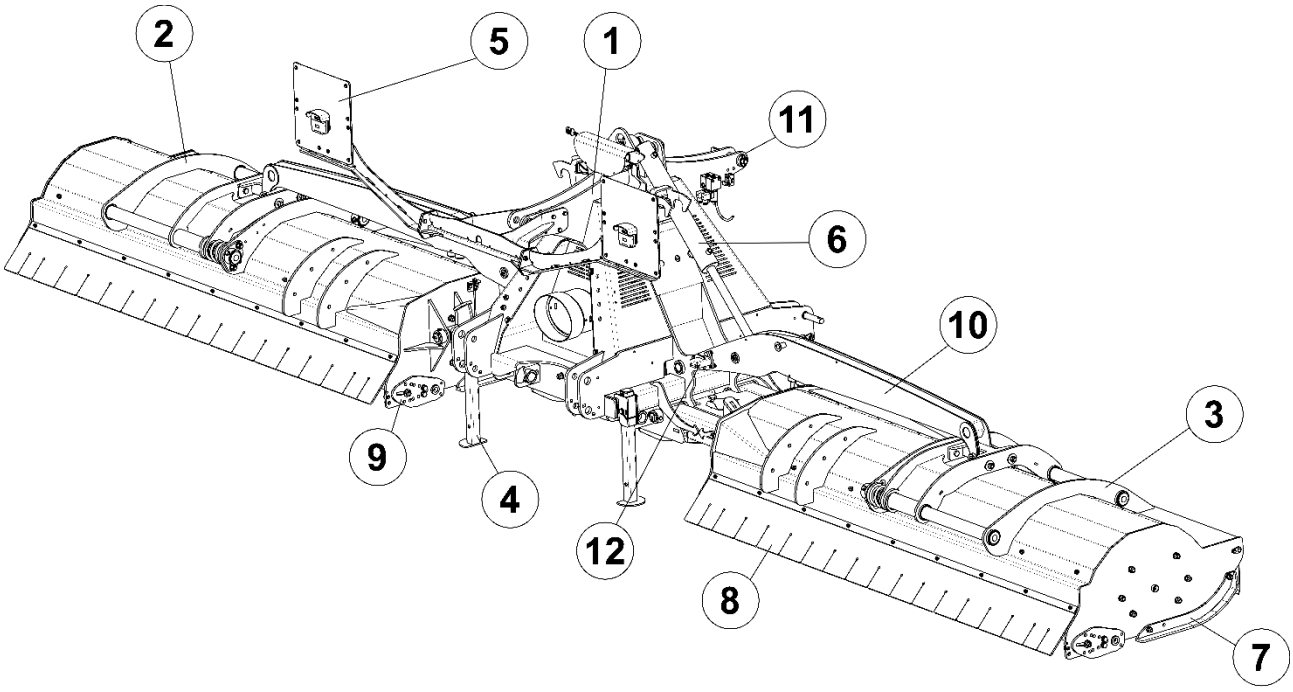

Figure 2

Item No.	Description
1	Centre chassis
2	LH wing cowl
3	RH Wing cowl
4	Storage stands
5	Light marker boards
6	Hydraulic ram

Item No.	Description.
7	Skids
8	Rubber protection flap
9	Rear roller
10	Wing arm
11	Three-point linkage
12	Wing angle limit sensor

Table 1

2.2 Noise

The sound level of this machine, as measured at the operator's ear, ranges from 70 to 90 dB when the rear window of tractor is open. We recommend the use of ear protectors.

2.3 Optional Equipment

According to the working requirements we recommend the following additional equipment:

- Y-blade flails (maximum cutting diameter of 30mm)
- Hammer flails (maximum cutting diameter of 60mm)
- OPTI Vibration control
- Wheels instead of rear rollers (maximum operating height of 250mm)

☞ Maximum thickness of material depends on the type and hardness of the material. Stated diameters are valid for fresh wood only.

2.4 Technical Specification

Machine.		Unit.	Sniper 800XHD.
Working width		mm	2x 2270
Recommended tractor HP	Minimum	kW/HP	113/150
	Maximum		225/300
RPM	PTO	RPM	1000
	Rotor		2119
Flail quantity	Y	No.	192
	Hammers		64
Weight		kg	2700
Linkage		CAT	I, II
Width		mm	804
Length		mm	152
Height		mm	163
Height of cut (min-max)	Roller	mm	25
	Wheels		25

Table 2

3 Safety

3.1 General Safety Rules

3.1.1.1 Before starting the machine, functionality, road safety and accident prevention rules must be checked.
3.1.1.2 Together with the operating and maintenance rules for the machine it is necessary to consider general health and security rules and warnings.
3.1.1.3 Before starting it is mandatory to understand everything regarding the features and operating of the machine. Reading instructions after operating is too late.
3.1.1.4 Security and warning decals on the machine are very important. Respect them always and ensure they are replaced if they are removed or damaged.
3.1.1.5 Even when using the machine correctly, stones or other objects may accidentally eject a long distance. Ensure all bystanders stand out of the danger area. Special attention must be paid when working near roads or buildings.
3.1.1.6 Use tractor with the cabin.
3.1.1.7 Whenever using public roads, respect traffic rules.
3.1.1.8 Never wear loose or fluttering clothes.
3.1.1.9 Keep the machine clean to avoid fire danger.
3.1.1.10 Before beginning work, check the surrounding area for the likely presence of children and/or animals.
3.1.1.11 Never carry passengers on the machine.
3.1.1.12 When connecting the machine to the tractor position the machine stand into the raised position. When disconnecting the machine position the machine stand into the lowered position. Take care about the stability of the machine when it is removed.
3.1.1.13 Never overload the machine and the tractor. Use the ballast if necessary.
3.1.1.14 Start the machine only if all guards of the machine are all present and fitted properly.
3.1.1.15 It is forbidden to stand in the operating range of the machine.
3.1.1.16 Do not enter the working zone of the PTO shaft. It is dangerous to approach the rotating parts of the machine.
3.1.1.17 Keep a safety distance from driveline and hydraulic parts of the machine (PTO shaft, hydraulic pipes).
3.1.1.18 Before leaving the tractor with the machine attached disconnect the tractor, put the machine firmly on the ground (with the hydraulic lift), apply the hand brake and if the ground is steeply sloping, wedge the tractor.Take out the starting key.
3.1.1.19 Do not enter the zone between the tractor and the machine. It is strongly forbidden to be in this zone if the tractor is not properly disconnected, hand brake applied and starting key removed.

3.2 Attachment To The Tractor And Transport

3.2.1.1 Before attaching or removing the machine from the tractor be sure that the hydraulic lift system is in a neutral position.
3.2.1.2 Check that the category of the 3-point linkage on the tractor corresponds to that one required on the machine.
3.2.1.3 Be careful! There is a danger of injuries when working near or with the 3-point linkage.
3.2.1.4 It is forbidden to be in the zone between the tractor and the machine while working with the hydraulics.
3.2.1.5 Put the 3-point linkage into the position that makes the moving of the machine possible.
3.2.1.6 During transport secure the lever of hydraulic lift to avoid any unplanned moving of the machine.
3.2.1.7 Never leave the tractor cab when the tractor is working.
3.2.1.8 Adjust driving speed to the road conditions.

3.3 PTO Drive

3.3.1.1 Use only PTO shafts with all guards, as provided by the Spearhead Machinery.
3.3.1.2 All guards on the PTO shaft must be in good order.
3.3.1.3 Take care that all guards on the PTO shaft are in proper position during transport or operating. Respect the manufacturers instructions.
3.3.1.4 The PTO shaft must be fitted or removed only with the engine stopped and the starting key removed.
3.3.1.5 The guards of the PTO shaft must be fixed to the machine and to the tractor with chains to prevent rotation.
3.3.1.6 Before starting always check that the speed and the rotational direction correspond to those on the machine.
3.3.1.7 With some tractors a number of rotations depends on the speed and a direction of rotating depends on the direction of driving. Take care about that.
3.3.1.8 Before starting the PTO shaft be sure, that no bystanders are in the danger area.
3.3.1.9 Never try to start the PTO shaft when the tractor engine is switched off.
3.3.1.10 It is forbidden to be in the zone of the PTO driveshaft, when it is engaged.
3.3.1.11 After the PTO is switched off wait for the driveshaft to stop rotating completely. Never approach before it stops.
3.3.1.12 Never carry out maintenance of a machine or tractor while the engine is running. The engine should be switched off and the key removed.
3.3.1.13 If the PTO shaft is damaged, immediately stop operating the machine.

3.4 Hydraulic System

3.4.1.1 Take care! Hydraulic system is under very high pressure.
3.4.1.2 When connecting the hydraulic hoses on the tractor check that the pressure is not too low.
3.4.1.3 We recommend that an official service tests the hydraulic system before operating and than at least ones per year. Damaged or worn hydraulic hoses should be replaced immediately with others of the same specification.
3.4.1.4 When checking hydraulic hoses it is necessary to wear protective clothes and gloves to avoid injuries.
3.4.1.5 The hydraulic oil under high pressure may sweep into the skin causing serious infections. In this case contact a doctor immediately.
3.4.1.6 Before working on the hydraulic system lower the machine, relieve pressure pressure and stop the tractor.
3.4.1.7 Approximately lifespan of hydraulic hoses is 6 years. After that the hydraulic hoses should be replaced to avoid any damage.
3.4.1.8 Used oils and greases must be stored and disposed according to antipollution rules.

3.5 Safety Rules During Use, Maintenance And Servicing

3.5.1.1 Never start the tractor engine if the tractor PTO is engaged.
3.5.1.2 Always remove the starting key after stopping the tractor.
3.5.1.3 Periodically check that bolts and nuts are tightened properly.
3.5.1.4 When carrying out maintenance it is sometimes necessary to lift the machine. It is mandatory to put under the machine an appropriate fixed support to avoid the machine falling or moving potentially causing damage to hydraulics, maintenance personnel or bystanders.
3.5.1.5 Use gloves and appropriate tools whilst changing sharp components of the machine to avoid injuries.
3.5.1.6 Used oils and greases should be removed according to the rules.
3.5.1.7 Always disconnect any electrical cables/connections on the tractor before any welding or other operation when electricity is required.
3.5.1.8 Only original Spearhead spare parts should be installed.

3.6 Warning Decals

Always turn off the engine of the tractor and remove the key before carrying out servicing operations.

Keep at a safety distance from the machine to avoid the risk of flying objects.

Never remove the guards while the parts of the machine are moving. It can injure the hands.

Keep at a safety distance from the machine to avoid the risk of injuring the feet.

It is forbidden to stand on the machine because of the risk of falling!

3.7 List Of Guards

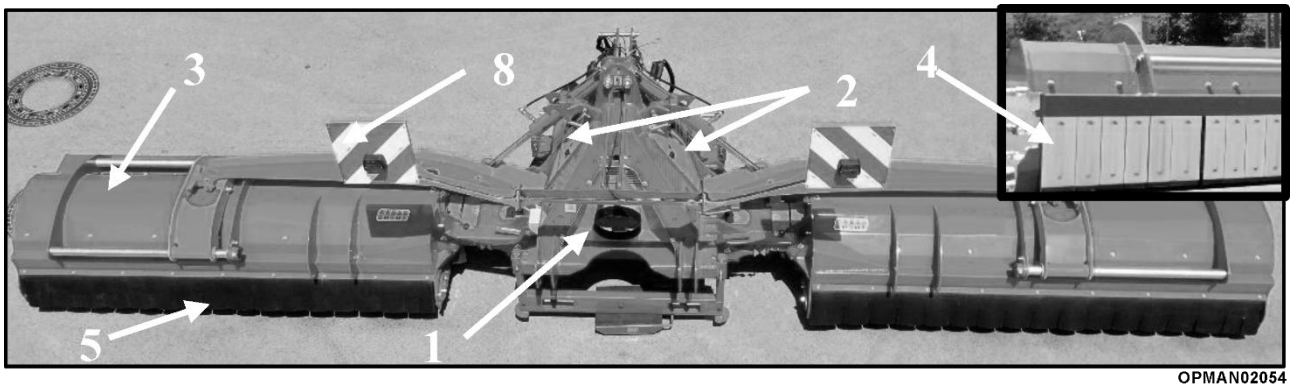

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Figure 3

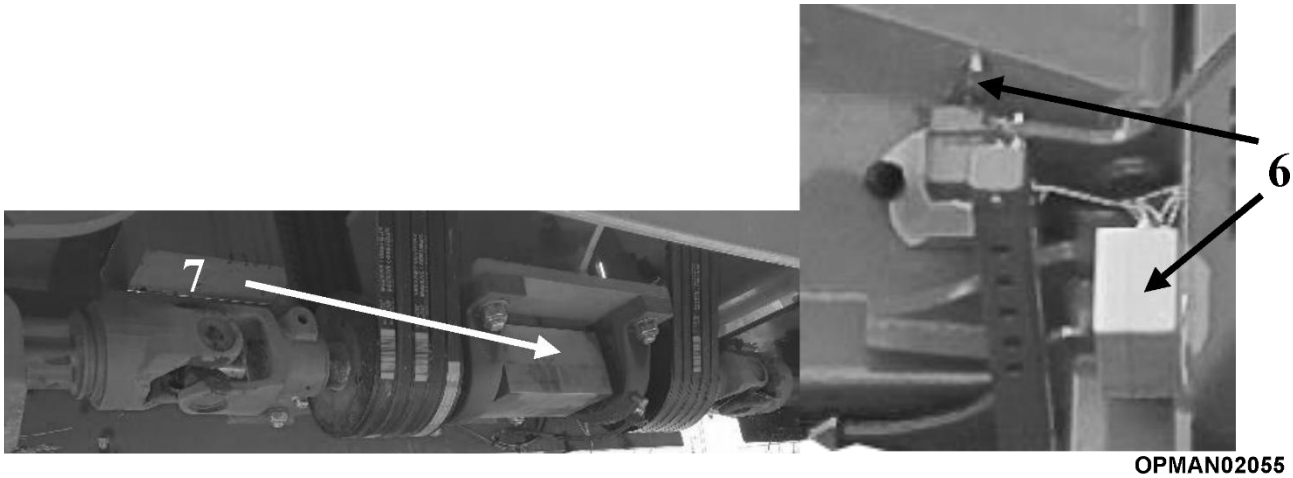

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Figure 4

Item No.	Description
1	PTO Guard Cone
2	Belt Guard
3	Warning Decals
4	Front Steel Protection Flap Guard

Item No.	Description.
5	Rear Rubber Protection Flap Guard
6	SECURE Tronic
7	SMART Align
8	Light marker boards

Table 3

4 Description And Operating Of The Machine

The machine can be equipped with two different types of flails: Y flails (Figure 6) or hammer flails (Figure 7). For Y flails, with self cleaning counter blades efficiently cut the mulching material. The rear discharge can be adjusted by placing the rear roller into different positions.

☞ Maximum thickness of material depends on the type and hardness of the material. Stated diameters are valid for fresh wood only.

Figure 6

Figure 7

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5 Transport And Attachment Of The Machine

5.1 Transport To The Customer

Unload the machine with special care to avoid any damage. Use the pallet fork slots found underneath the centre chassis transport support of the machine for moving and unloading (Figure 8). Check that all four supports are present.

Check that all nuts and bolts are fixed and tightened. Specially check the bolts and nuts for the flails. They must be tightened sufficiently, yet not overtightened to ensure that the flails still moves.

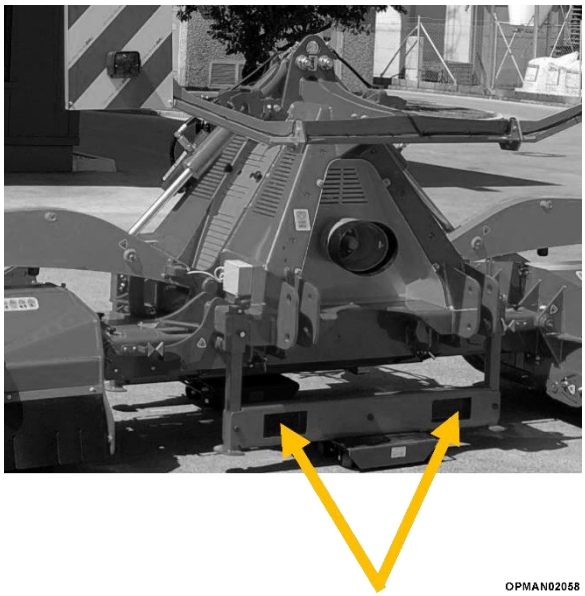

Figure 8

STOP Remove the transport support of the machine once unloaded.

5.2 Attachment And Detachment From The Tractor

Before using the machine check:

5.2.1.1 That the machine is in good condition
5.2.1.2 That all guards are all present, fitted correctly and in good condition
5.2.1.3 That flails are complete and undamaged
5.2.1.4 That all greasing points are greased well and that the correct quantity of oil is in the gearbox
5.2.1.5 Belts are correctly tensioned
5.2.1.6 The tractor is setup to operate the PTO of the machine at the correct operating rpm and direction of rotation (1000rpm).

When you attach the machine to the tractor, bring the tractor lower linkage near the machine, to the line up the linkage to the pin fitting holes in the machine headstock. Insert the pins and secure them with the spring clips. Fit the top link, raise the machine and adjust the tractor adjustable top link to position the machine to a parallel position to the ground. Adjust the two tractor lower linkage stabilizers to fix the machine to the tractor in a central position. Connect the hydraulic hoses and operate the hydraulic ram to see it works correctly.

☞ 3-point hitch of the machine must be in a parallel with the ground.

STOP Always check that rpm and direction of rotation of the PTO driveshaft of the tractor corresponds to that of the machine.

5.3 Fitting The PTO Shaft

Attach the machine to the tractor. Split the two halves of the PTO driveshaft placing one part on the tractor and another on the machine. With the machine laying on the ground, inspect to see the minimum amount of overlap between the two halves of the PTO driveshaft are not less than 1/3 of the total length of the driveshaft (Figure 9). Grease the inner/outer metal sliding tubes before putting them together.

Enter the tractor, start the tractor and raise the machine and stop the tractor. With the machine raised off the ground, inspect to see the minimum amount of clerance between the inner tube yoke of the PTO driveshaft and the outer driveshaft tube is not less than 4-5cm (Figure 10).

If required, and a quantity of 1/3 length overlap between the driveshaft tubes can be maintained, cut and remove a sufficient amount of inner/outer plastic guarding tubes, followed by the metal inner/outer drivetubes. Clean/deburr the edges and then grease the two halves of the the metal inner/outer drivetubes before putting them together.

Too long PTO shaft can seriously damage tractor or flail mower.

Never fit the PTO shaft on the tractor without all guards and chains fitted properly.

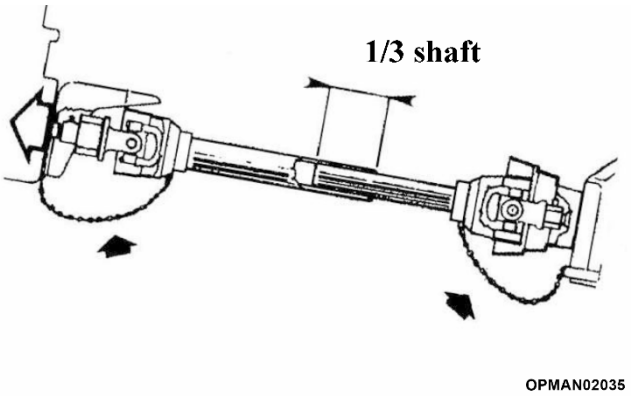

Figure 9
Appropriate Length Of PTO Shaft With The Machine On The Ground

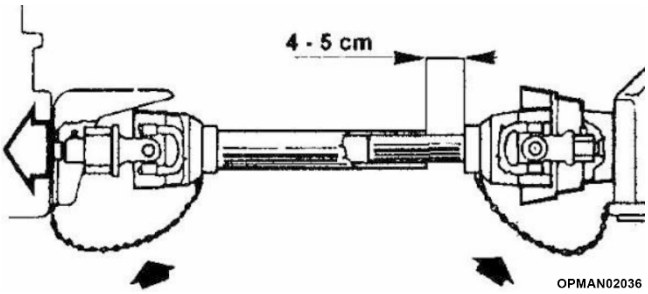

Figure 10
Appropriate Length Of The Guard With The Machine Lifted

5.4 Stability Of The Tractor

When fitting the machine to the tractor always take into account the maximum weight allowed of the attachment and axle load upon the tractor. The front axle of the tractor should always be loaded with a minimum of 20% of the complete weight of the tractor itself. This is very important specially on this machine because of its distance from the tractor machine!

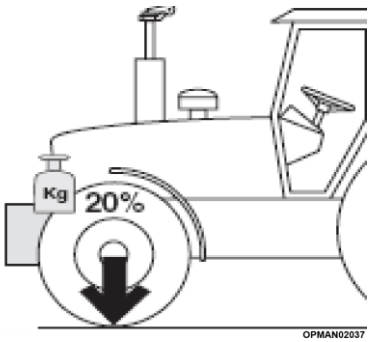

Figure 11

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6 Adjustment

6.1 Working Height Adjustment

The machine has a ability to work in two ways: by discharging material in front or behind the rear roller. With reference to Figure 12, placing the rear roller in its “forward/front” position (1) will discharge material behind the rear roller. Benefits are brought by the rear roller being self cleaning in this position. Placing the rear roller in its “rear/behind” position (2) will discharge material infront of the rear roller. In this case we recommend to install a scraper and a deflecting plate as optional equipment (2).

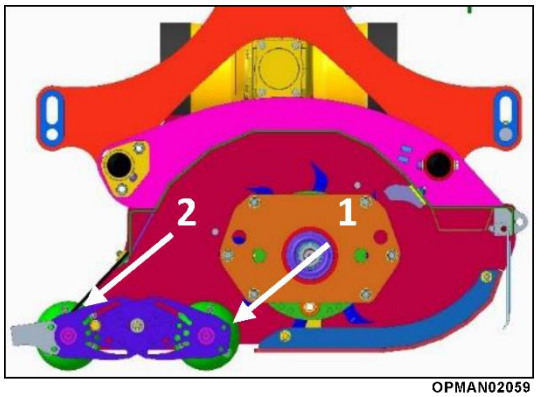

Figure 12

To change the position of the rear roller for front or rear discharge it is necessary to turn the rear roller around With reference to Figure 13:

6.1.1.1 Loosen fasteners (1)
6.1.1.2 Loosen and remove fasteners (2) (3)
6.1.1.3 Rotate the rear roller and roller bracket assembly fastener point (1)
6.1.1.4 Retighten fasteners (1)

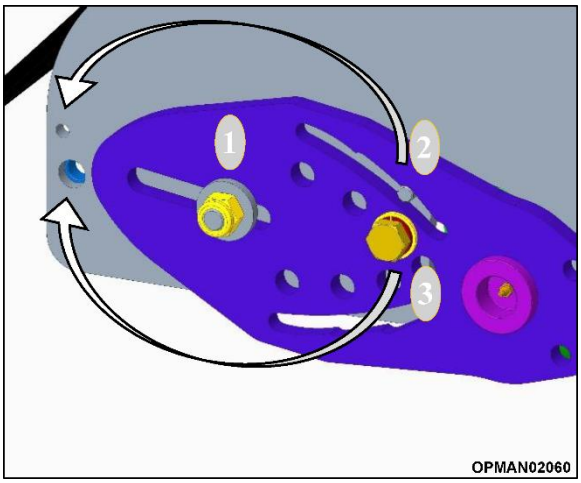

Figure 13

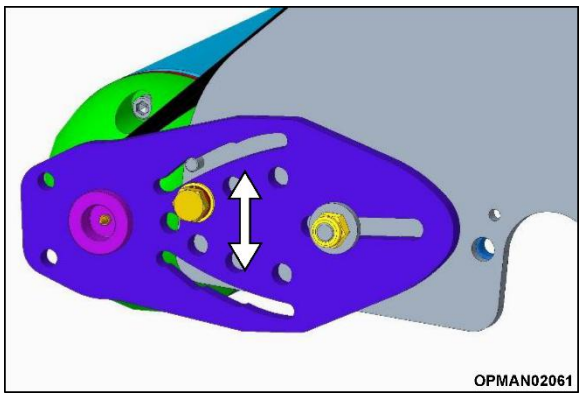

Figure 13A

The height of cut can be limited due to working conditions and volume of the material. The height of cut can be regulated with the hydraulic system on the tractor and/or adjusting the rear roller on the machine (Figure 13). The minimum height of cut should be between 1-3 cm. The machine should always run on the rear roller and not on the skids.

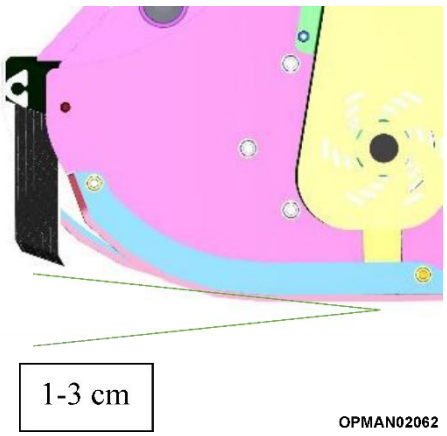

Figure 14

Flails should never touch the ground. The skids are only the protection against irregular collision.

6.2 Belt Tension Adjustment

Appropriate belt tension is important for optimal operating of the machine and for longevity of the drivebelts. The flail mower is equipped with an automatic belt tensioner to maintain the correct belt tension in operation. Improper belt tension can only be the result of broken components.

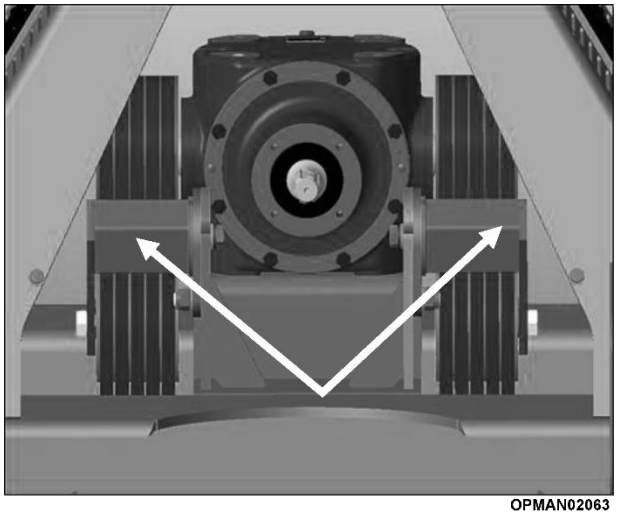

Figure 15

Tension the belts only when tractor is disconnected and starting key taken out.

Appropriate belt tension is achieved when the automatic belt tensioner is positioned at an angle of 20°-22° (Figure 16). See arrows

7 Operating

7.1 Warnings

STOP It is strictly forbidden to start PTO shaft when the machine is in the transport position. THE MACHINE MUST BE UNFOLDED AND IN WORKING POSITION!

STOP Start the PTO shaft at low, idle tractor rpm and slowly increase rpm until the correct operating speed is reached.

STOP Before operating always check the working area for hard objects such as stones, rocks and wood.

STOP When working with the flail mower at low rpm, flails can hit back and damage the rotor shaft.

STOP A damaged rotor shaft can induce serious vibrations and can consequently damage or crack the main cowl fabrication. It is necessary to stop the machine immediately, stop PTO shaft, check the rotor shaft and change missing or damaged parts and flails. If the machine is still vibrating it is necessary to rebalance the rotor shaft. Contact your local Spearhead Machinery dealer for support.

7.2 Start The Machine

When arriving at the working area place the machine into the working position in the following order:

7.2.1.1 Switch on SECURE Tronic (Figure 17)
7.2.1.2 Release the transport locks with the cable (Figure 16)
7.2.1.3 Lower the left and right wings into their working position (one at a time)
7.2.1.4 Lower the machine to the working height and align the wings with central chassis – see the arrows (Figure 17A). This position allows the best floating and longevity of the driveline
7.2.1.5 Place the wing hydraulic rams into float
7.2.1.6 Start the machine


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Figure 16

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Figure 17

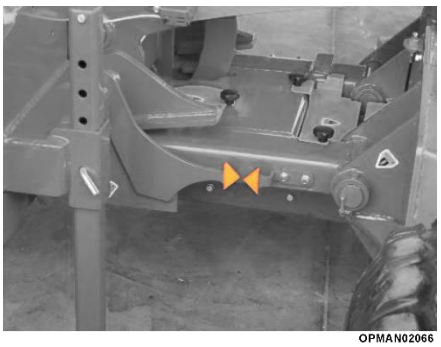

Figure 17A

It is necessary to lower the machine into the working position slowly to avoid overload on bearings on rear rollers. Take special attention when dropping on a hard surface (tarmac e.t.c)

Working speed is dependent on working conditions and on the material being cut. Optimal speed is between 3-8 km/h. In the case of much more dense grass or other material, it is required to reduce speed to avoid slipping of the belts.

Figure 18

Figure 19

Before reversing the tractor, lift the machine off the ground to avoid damaging it. (Figure 19)

Lift the machine during turning.

We recommend that you lift the machine by locking hydraulics of the hydraulic wing rams from their working float position and raise the machine off the ground with the tractor lifting arms. After turning, lower the machine back to the floor again and place the hydraulic wing rams back into float to continue work.

7.3 SECURE TRONIC Safety Electronic Device

7.3.1 Guide

The SECURE Tronic safety device prevents the machine against unallowed raising of the wings when rotors are still rotating. The SECURE Tronic safety device limits the operating angle of the PTO shafts during work. Too larger/steeper operating angle of the PTO shafts can cause serious damage.

SAFE ZONE – SECURE TRONIC is ON

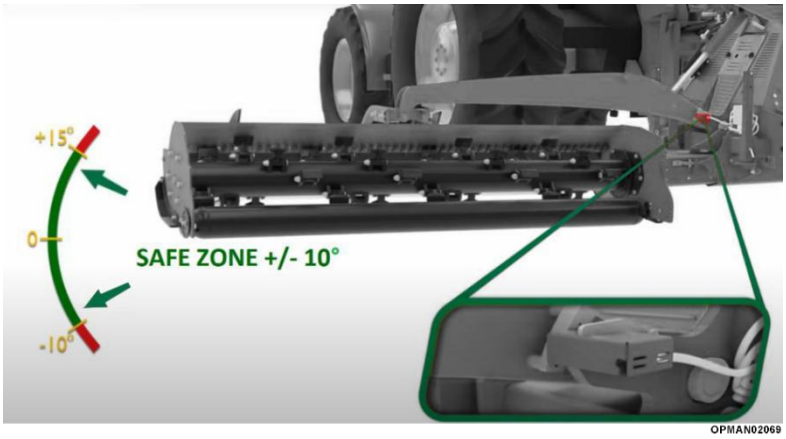

Figure 20

When the rotors are turning and the PTO is ON, the SECURE Tronic electronic device prevents the hydraulic wing rams from lifting above 10 degrees. Above this angle, rotor shafts and PTO shafts are secured against damage by being automatically stopped.

SAFE ZONE – SECURE TRONIC is OFF

If SECURE Tronic is switched OFF and you are in the SAFE ZONE working angles (-10°< angle > +10°), do not start the PTO driveshafts to engage the rotors. With SECURE Tronic switched off, you can raise the wings too much by mistake and cause a damage to both the rotor shafts and PTO shafts. With SECURE Tronic switched ON this can be prevented.

UNSAFE ZONE – SECURE TRONIC is out of its WORKING ZONE

When the rotors are lifted over 10° from the ground or they are in the transport position, they are out of the SAFE ZONE. SECURE Tronic will not stop turning rotor shafts. It is strictly forbidden to start the PTO shafts in this position.

Figure 21

When the rotors are not turning you can raise the machine into the transport position. SECURE Tronic will not preventing to lift the wings. If the operator turns the PTO shafts ON, it will result in a sudden and total faliure, from which recovery is impossible. Damage will occur on both rotors, PTO shafts and other parts of the machine.

7.3.2 Set-up

To set-up SECURE Tronic:

7.3.2.1 Fit the machine to the tractor
7.3.2.2 Connect the hydraulic hoses and electric cables
7.3.2.3 Switch on SECURE Tronic
7.3.2.4 Check that the lifting and lowering of the machine hydraulic system is working properly
NOTE - The PTO driveshaft must be disconnected during testing.
Lift and lower the machine operation twice to exclude an air in the hydraulic system
7.3.2.5 Put the machine with PTO driveshafts into the working position

7.3.3 Test Operation

Test 1 – with SECURE Tronic OFF

Check SECURE Tronic device:

7.3.3.1 Switch OFF SECURE Tronic device (remove plug).
7.3.3.2 Start the PTO drive and try to lift both wings into the transport position.
7.3.3.3 The device is working if wings are locked.
7.3.3.4 If both wings start to lift, the device is not working, STOP the operation immediatelly.
7.3.3.5 If device is working, continue with TEST 2.

Test 2 – with SECURE Tronic ON

Check SECURE Tronic device:

7.3.3.6 Switch ON SECURE Tronic.
7.3.3.7 Start PTO drive, at tractor idle rpm.
7.3.3.8 Slowly lift one wing.
7.3.3.9 Lifting must be stopped automatically at too big angle.
7.3.3.10 Do the same procedure for the second wing.
7.3.3.11 If both wings are stopped at +10°, a device is working properly.

What to do in the case SECURE Tronic is not working:

When it is not possible to lift the wings into the transport position due to a problem with on the SECURE Tronic, remove the electromagnetic solenoid on the SECURE Tronic by removing the bolt, Figure 22. After that, the machine should fold without obstruction.

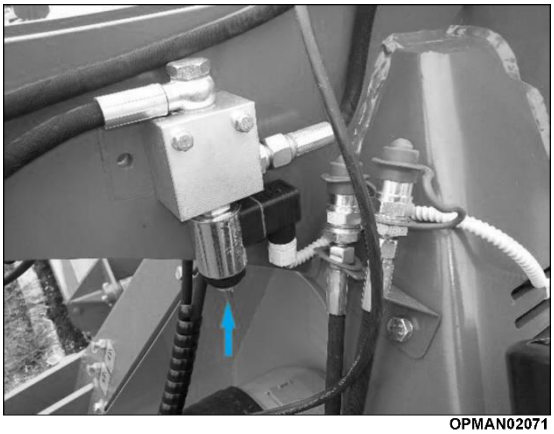

Figure 22

8 Machine Storage

8.1 Machine Removal

After work disconnect the PTO shaft and wait until the rotors of the machine completely stop rotating. Lift the machine into the transport position. Switch off Secure Tronic.

The machine must be completely stopped before lifting.

It is important to assure that the PTO driveshaft freely rotates on the tractor before lifting.

Check the condition of the rotor shaft, flails and all fasteners are tightened correctly.

During transport reduce speed on bumpy roads. The weight of the machine fitted to the tractor can change the driving characteristics of the tractor. Ignoring these change in characteristics may result in driving becoming difficult and damage may occur to the machine itself. During transport the machine must be always in the central, not offset position.

PTO shaft must be disconnected during transport. Never engage PTO shaft when wings are in vertical position.

When disconnecting the machine respect the warning rules for attaching/removing the machine.

Store the machine on a dry and flat ground with all four support legs down to avoid any damage or corrosion.

8.2 Cleaning

To avoid corrosion clean the machine after each working day, especially flails, bearings etc. Be careful to avoid damaging hydraulic hoses, the hydraulic cylinder, bearings and paint (Figure 23).

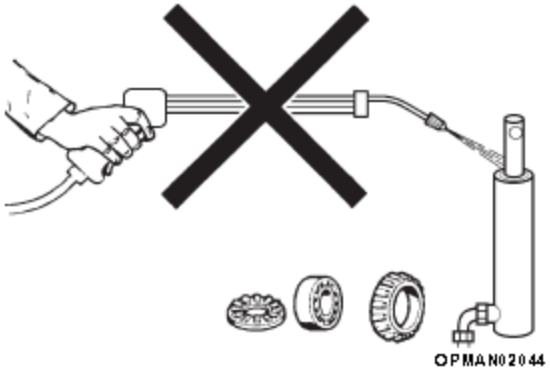

Figure 23

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9 Maintenance

9.1 Maintenance Warnings

All maintenance, cleaning and repair operations must be carried out with the machine firmly lowered to the ground and detached from the tractor, or with disconnected PTO, engine off and starting key out.

The time of maintenance is defined according to the normal use of the machine. If the machine is used in very hard conditions, the time between maintenance operations must be shorter.

Take care that grease nipples on the machine are always clean.

After each maintenance operation check that all guards are fitted on the proper place.

9.2 Gearbox Oil

Sniper XHD (dual) machine gearbox requires the use of **75W90** oil.

Use always the same type of oil, synthetic oil which is appropriate for gearboxes. The machine is supplied with MOBIL, MOBILUBE 1SHC 75W-90. As an alternative you can use also SHELL SPIRAX 75w90 or CASTROL TAF-X 75w90.

9.2.1 Check Oil Level

To check oil level:

With reference to Figure 24:

9.2.1.1 Remove the gearbox shield (1) and PTO cone shaft shield (2).

Then, with reference to Figure 25:

9.2.1.2 Unscrew the level plug screw (3). The correct level of oil is achieved when oil escapes and then stops from the plug hole.

9.2.1.3 Add additional oil if necessary through the fill plug (2). Retighten after.

9.2.1.4 Refit and tighten the level plug screw (3).

9.2.2 Oil Change

To change the oil:

With reference to Figure 24:

9.2.2.1 Remove the gearbox shield (1) and PTO cone shaft shield (2).

Then, with reference to Figure 25:

9.2.2.2 Unscrew the level plug screw (3).

9.2.2.3 Unscrew the drain plug screw (1) and let the oil drain into an appropriate container.

9.2.2.4 Refit and tighten the drain plug screw (1).

9.2.2.5 Unscrew the fill plug screw (2), and pour in the the correct grade of oil. The correct level of oil is achieved when oil escapes and then stops from the level plug hole (3).

9.2.2.6 Refit and tighten the fill plug screw (2) and level plug screw (3).

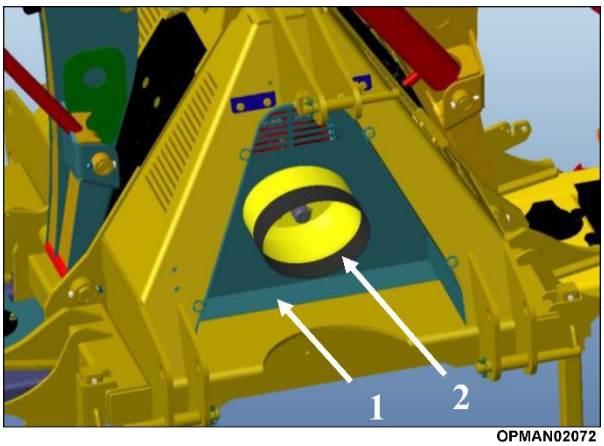

Figure 24

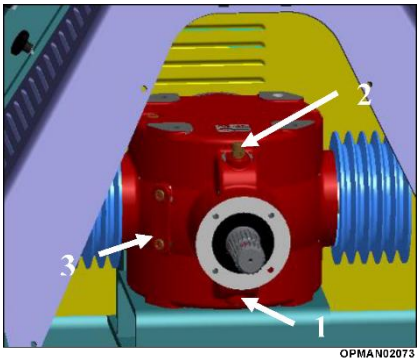

Figure 25

9.3 Greasing

☞ Before carrying any greasing operation read these instructions first.

9.3.1 Grease Point Locations

With reference to the following Figures, the machine has the following 24 greasing points:

- Right and left PTO driveshafts x6 (Figure 26 – (1)(2)(3))
- Pivot pins on machine arms x10 (Figure 26 – (4))
- Pivot pins on hydraulic rams x4 (Figure 26 – (5))
- Inner rotor shaft bearings x2 (Figure 27)
- Outer rotor shaft bearings x2 (Figure 28)

☞ During greasing use gloves. After greasing always wash your hands.

☞ Use type ISO L-XBCHA 3 or DIN 51825-K 3 K-20 for greasing.

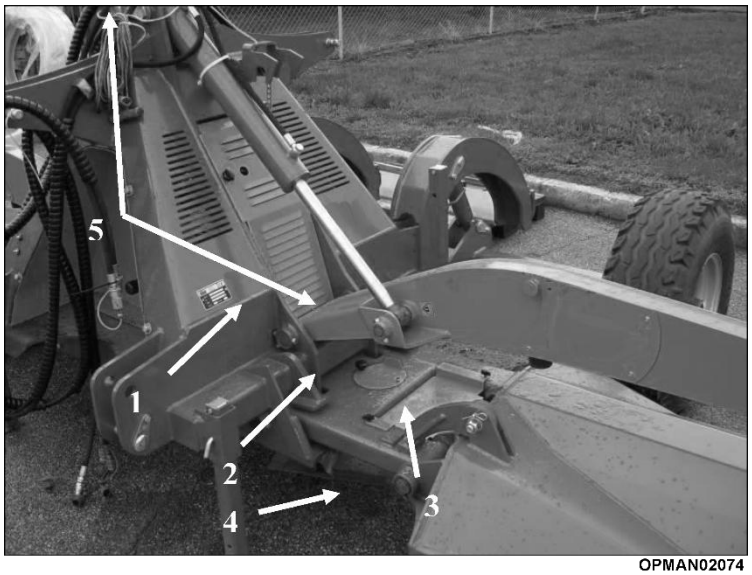

Figure 26

Figure 27

Figure 28

9.3.2 Belt Replacement

To change the belts proceed as follows:

9.3.2.1 Remove the belt shield (Figure 29).

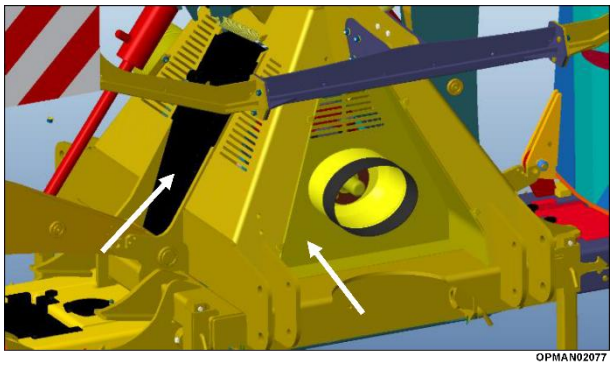

Figure 29

9.3.2.2 Remove the belt tensioners (Figure 30).

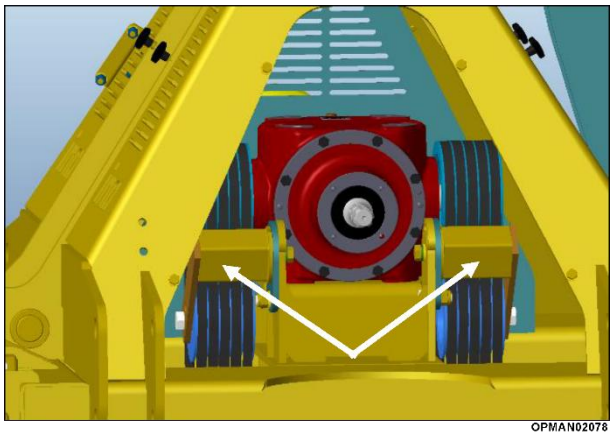

Figure 30

9.3.2.3 Remove the PTO driveshaft. Mark the position of everything to know its position of each when assembling them on back (Figure 31).

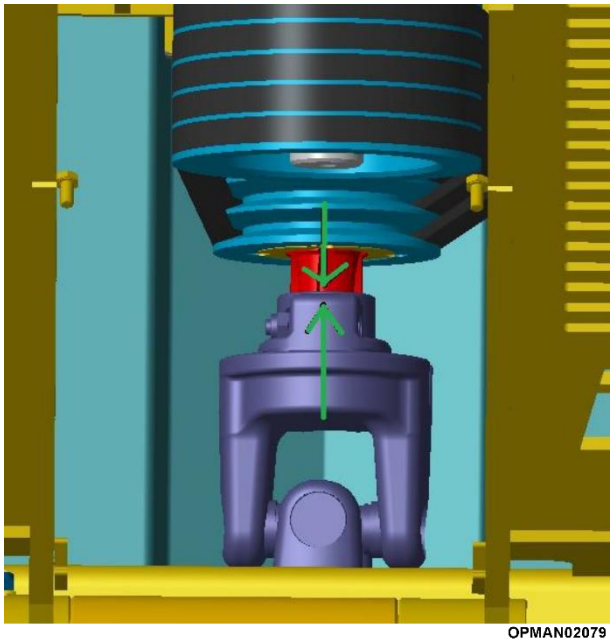

Figure 31

9.3.2.4 Remove old drivebelts and install new ones.
9.3.2.5 Re-install PTO driveshafts, each on the same position as shown in Figure 31.
9.3.2.6 Re-install belt tensioners and tension them according to instructions as shown in Figure 30.
9.3.2.7 Re-install back all shields as shown in Figure 29.
9.3.2.8 Re-check belt tensioning after first 2 hours of operating.

9.4 Maintenance Schedule

9.4.1 Every 2 hours

- Check the belt tension
- Check that all bolts and taper locks are tightened sufficiently

Do the same also after each belt change.

9.4.2 After 50 hours

- Check oil level in the gearbox

9.4.3 Every 5 hours

- Check to see that all fasteners are tightened
- That all required parts are greased sufficiently
- Check wear and condition of flails
- Tension of drivebelts and tightness of taper locks
- Condition and wellbeing of all driveline safety guards
- Inspect the condition of the complete machine

9.4.4 Every 25 hours

- Check the belt tension
- Check and grease the machine

9.4.5 Every 50 hours

- Check oil level in the gearbox

9.4.6 Every 500 hours

- Change the oil in the gearbox

9.5 Flail Replacement

If you find after work that the flail are damaged, change them. If it is necessary to change only a few flails, always change the broken or worn one and the one directly opposite in order to maintain the balance. If the rotor shaft is vibrating after changing the flails, immediately stop the machine. The machine rotor assembly with flails must be balanced before any work.

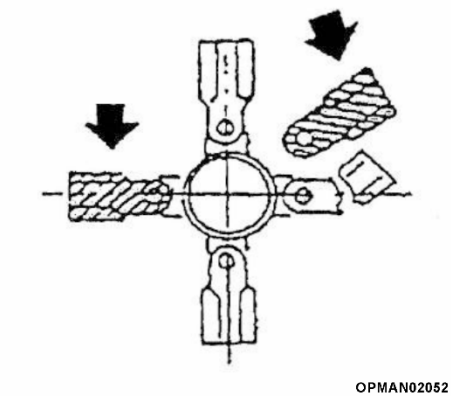

Figure 31

9.6 Machine Storage

At the end of the working season we recommend to clean the complete machine, change broken or worn parts, tighten the fasteners and belts, grease required components and touch up damaged parts with paint. Store the machine on a dry and flat ground, preferably indoors.

9.7 Machine Disassembly And End Of Life

If the machine is out of order, all its parts that might cause dangers have to be made inoffensive. Materials, forming the machine that have to undergo a differentiated division, are:

- Steel
- mineral oil
- rubber
- plastic

All the above mentioned operations and the disposal have to be carried out in total respect of the present provisions of law on the subject.

10 Troubleshooting

Trouble	Causes	Remedies
Irregular cut	Worn, bent or broken flails	Replace the flails
	Too low RPM	Increase RPM
	Machine is not operating level with the ground	Adjust pitch of machine on the tractor
	Clogged material due to excessive working speed	Reduce the working speed
Noise	Loose fasteners	Tighten fasteners
	Damaged parts of the machine	Find cause of damage and repair components
Gearbox noise	Lack of oil	Fill oil till level mark
	Worn gears	Replace
	Worn bearings	Replace
Machine Vibration	Broken or worn flails	Replace
	Unbalanced rotor	Balance or replace
	Worn rotor bearings	Replace
Excessive movement in joints	Worn pins	Replace
Damaged bearings	Dirty or ungreased bearings	Clean and grease
	Violant impact on the ground when the machine is lowered	Lower machine gently
Belts overheating	Belts slipping	Tension the belts
	Flails are touching the ground	Adjust the height of cut
	Too fast working speed	Reduce the speed

Table 4

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11 Spare Parts

11.1 Genuine Spare Parts

Cost savings associated with the purchase of non-genuine spare parts can be difficult to dismiss, however it is essential to consider the potential safety and longer term performance of the machine and not just the short term financial gains when setting out to repair or refurbish a Spearhead product.

Spearhead Machinery consider all parts not supplied or manufactured by Spearhead Machinery as imitation or copied, it is impossible to guarantee their reliability and they may cause damage to your machine. Genuine Spearhead parts are made to specific standards to give performance and safety. Substitute components may not meet specifications and may fail in a hazardous manner that could cause injury.

Not only can non-genuine spare parts cause damage to the machine, but they may also result in lower performance and invalidate the machine's warranty. To maintain the Spearhead Machinery warranty requires the use of genuine Spearhead Machinery parts.

Spearhead Machinery utilises an interactive parts manual system which uses the machines serial number to give the exact parts required for the that particular machine. Section 11.2 gives guidance on how to use the Spearhead Machinery interactive parts manual system and find correct replacement parts.

It is important to state that **Spearhead Machinery does not sell directly to end users** but instead uses an extensive dealer network to provide to its customer base. Section 11.4 gives guidance to find your nearest Spearhead Machinery dealer.

Purchasing Genuine Spearhead Parts will give you peace of mind that your machines performance won't be compromised and can cost less than you think, so contact your local dealer for a quote before buying non-genuine spare parts.

11.2 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 32.

11.2.1.1 Enter the serial number.

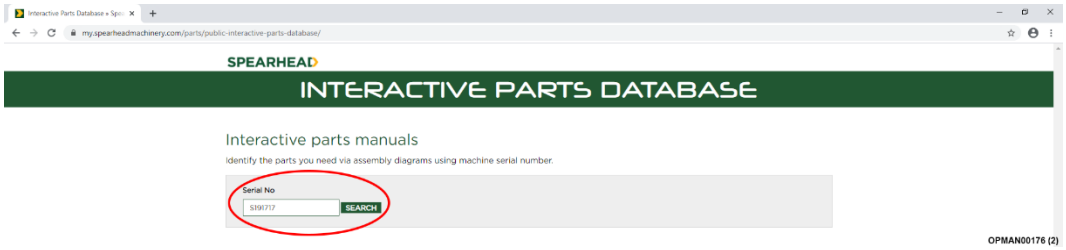

Figure 32 – Type In Serial Number

11.2.1.2 After entering the serial number a specification for the machine will appear. Click on the serial number; see Figure 33.

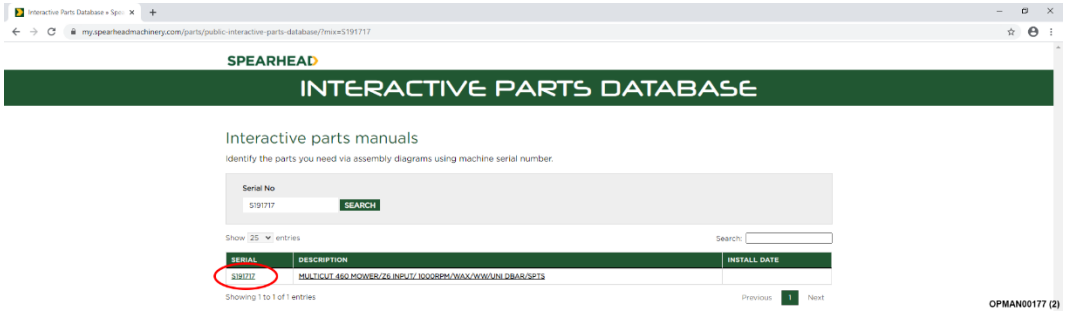

Figure 33 – Click On Serial Number

11.2.1.3 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 34.

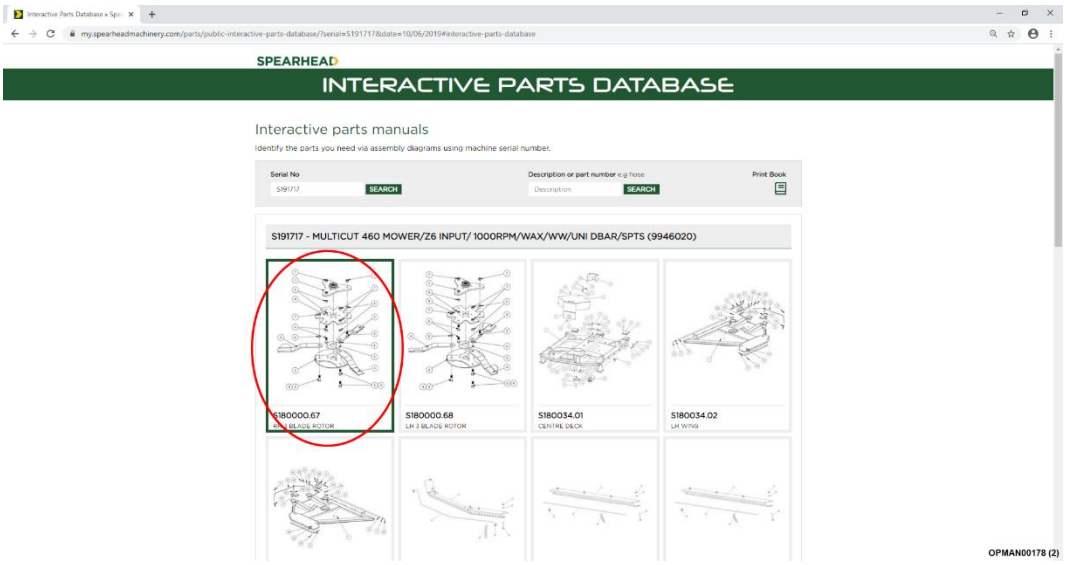

Figure 34 – Click On Assembly

11.2.1.4 You will finally be presented with a full exploded parts breakdown for that particular assembly, giving part numbers and the quantities required; see Figure 35.

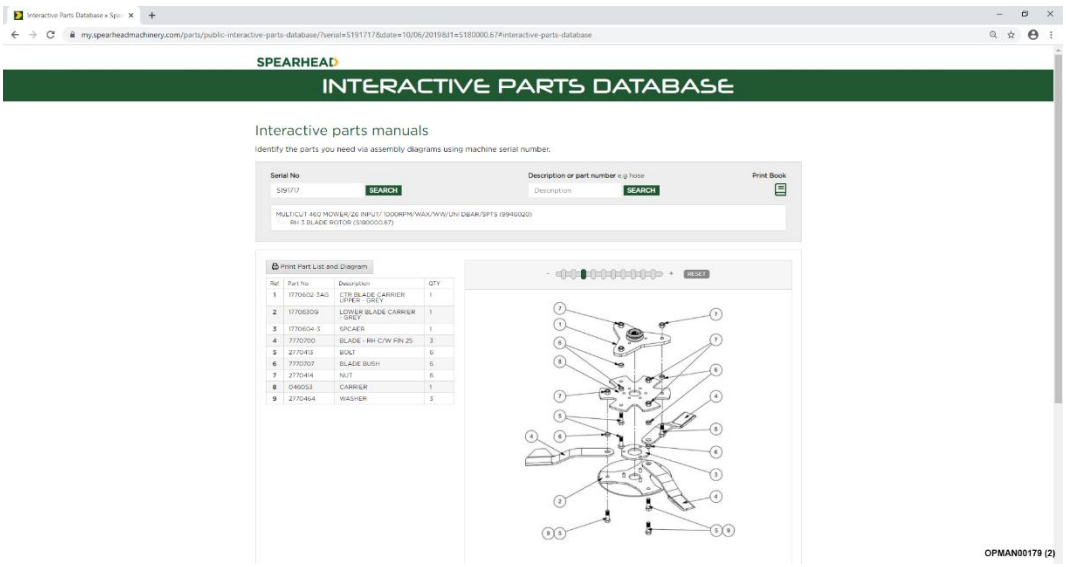

Figure 35 – Exploded Parts Breakdown With Bill Of Materials

11.3 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 11.4.

11.4 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 36.

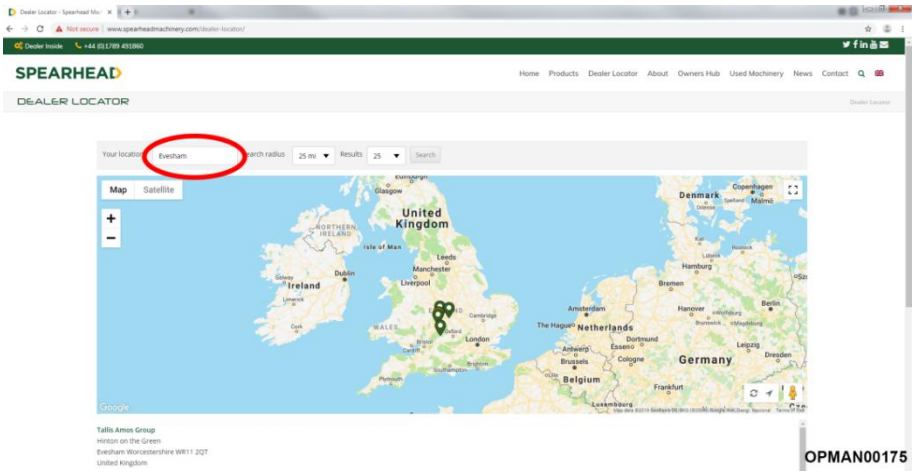

Figure 36 – Dealer Locator

Notes