

**Spearhead Machinery  
Operator Instruction Manual For**

**SP CUTTERBAR**  
FOR MACHINES WITH WGC 9990015/9990018/9990021

**1.50m to 2.10 cut width**

Vegetation control hydraulic drive cutterbar attachment

**8999169EN 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

|   |                           |                     |
|---|---------------------------|---------------------|
| <b>Model Type:</b>                      |                           | <b>SP Cutterbar</b> |
| <b>Model Number:</b>                    |                           | <b>99</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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## SP Cutterbar

Spearhead SP cutterbars are hydraulic arm mounted reciprocating cutting attachments designed for general hedge and tree trimming of up to 40mm (1.6") in diameter or multiple branches that have a total cross section area of equivalent size.

Machines are available in a choice of either 1.50m, 1.80m or 2.10m working widths; fitted with cutting knives.

Designed for use on Spearhead's reach arm range, the SP cutterbar is the ideal machine for landscaping, gardening, agriculture, forestry and other similar applications.

**IMPORTANT:** This machine must only be used to perform the tasks for which it was designed. Use for any other purpose may be dangerous to persons and damaging to the machine.

### 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.

Spearhead SP cutterbars are hydraulic arm mounted reciprocating cutting attachments designed for general hedge and tree trimming of up to 40mm (1.6") in diameter or multiple branches that have a total cross section area of equivalent size.

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Designed for use on Spearhead's reach arm range, the SP cutterbar is the ideal machine for landscaping, gardening, agriculture, forestry and other similar applications.

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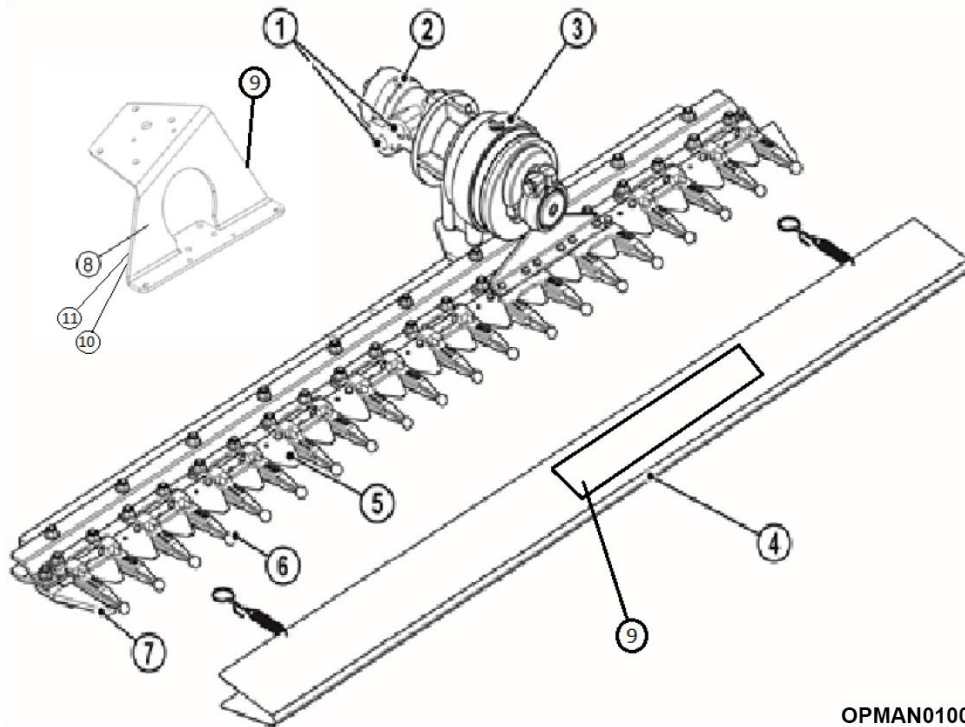


**Figure 1.1 SP Cutterbar**



## 1.2 General Arrangement

The layout and naming convention used throughout this manual are shown in Figure 1.2 below



OPMAN01008

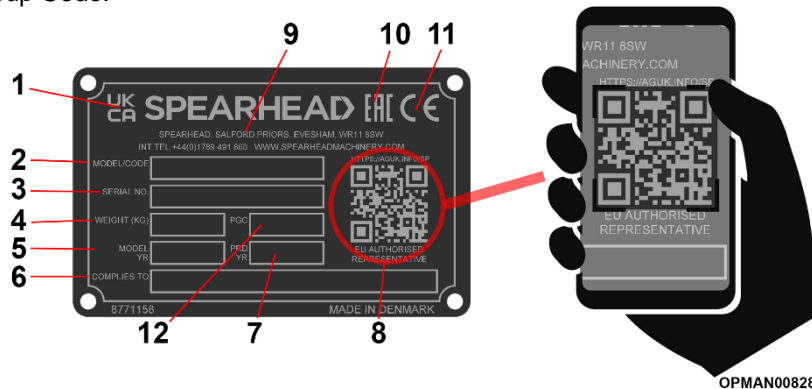
| Item No | Description                  |
|---------|------------------------------|
| 1       | Hydraulic Hose Connections   |
| 2       | Hydraulic Motor              |
| 3       | Reciprocating Motor Drive    |
| 4       | Machine Safety Guard         |
| 5       | Knife                        |
| 6       | Knife Guard                  |
| 7       | Safety                       |
| 8       | Cutterbar Mount Bracket      |
| 9       | Knife Guard Warning Decal    |
| 10      | Serial Plate                 |
| 11      | Mount Bracket Warning Decals |

**Figure 1.2**

## 1.3 Machine Identification

Each machine is equipped with a serial plate; see Figure 1.3 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.



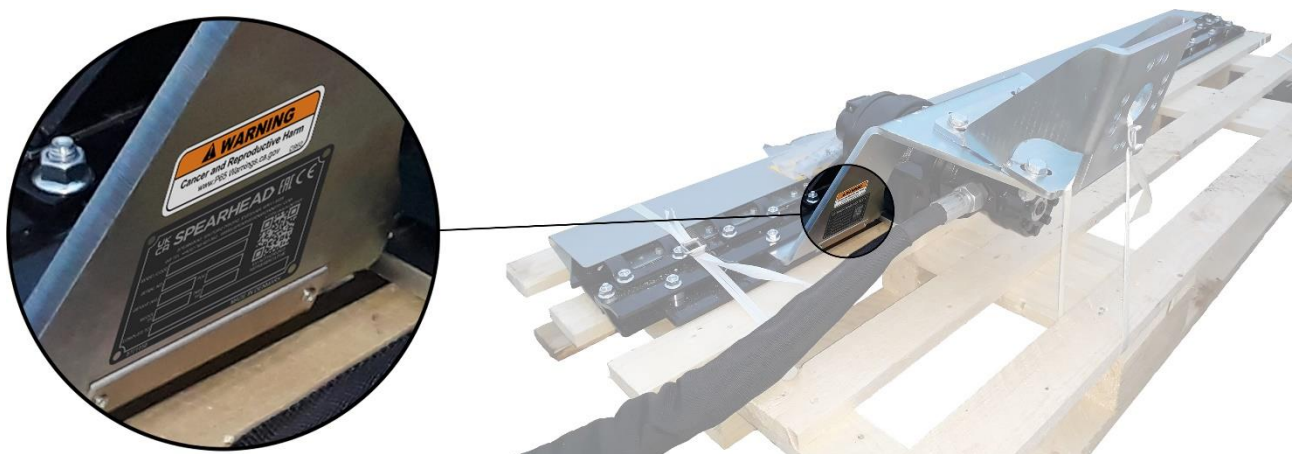
**Figure 1.3 – Serial Plate**

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

The serial plate is located near the headstock mounting point of the machine; see Figure 1.4.



**Figure 1.4 – Serial Plate Location**

OPMAN01009

## 1.4 Machine General Specification.

### 1.4.1 Standard Specification

| Model               | SP15   | SP18           | SP21           |
|---------------------|--|----------------|----------------|
| Weight (1)          | 65kg (143lbs)  | 72kg (159lbs)  | 80kg (177lbs)  |
| Working Width (2)   | 1.50m (4' 11")   | 1.80m (5' 11") | 2.10m (6' 11") |
| Length (2)          | 0.50m (1' 8")  |                |                |
| Width (2)           | 1.55m (5' 1")  | 1.86m (6' 1")  | 2.16m (7' 1")  |
| Height (2) (3)      | 0.20m (8")   |                |                |
| Safety Guarding     | Transport knife guard  |                |                |
| Mounting Attachment | 4 x M16 bolts mounting through a flange plate  |                |                |
| Hydraulic Flow (4)  | OMR 80 - 15-30 l/min (for Twiga Carrier)<br>or<br>OMR 100 - 20-40 l/min (for Twiga Compact, Classic, Mid, Pro, Flex) |                |                |
| Max Pressure        | 175bar (2538psi)   |                |                |
| Max Motor Speed     | 400 rpm  |                |                |
| Max Operating Speed | 3 mph (5 km/h)   |                |                |

**Table 1.1**

**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.
- (2) All dimensions are determined from computer models, so actual measurements may vary slightly.
- (3) Height dimensions are given without the cutterbar mounting bracket being fitted to the machine.
- (4) SP cutterbars can be supplied with either an OMR 80 motor (for Twiga Carrier) or OMR 100 motor (for Twiga Compact, Classic, Mid, Pro, Flex) depending on the hydraulic capabilities of the prime mover.

## 2 Safety

### 2.1 Safety Warnings

The operator must read, understand and follow all of the Safety instructions. Serious injury or death may occur unless care is taken to follow the warnings and instructions provided. The level of safety is indicated in three levels and the following notation is used throughout this operator instruction book;



**DANGER!** Level 1; alerts for imminent death or critical injury.



**WARNING!** Level 2; warns of serious injury or possible death.



**CAUTION!** Level 3; indicates possible injury.

**IMPORTANT:** Special instruction related to either the machine, tractor or the working environment

**NOTE:** Special instruction related to either the machine, tractor or the working environment

Never operate the tractor or machinery until you have read and completely understand this manual and the tractor operators manual and each of the safety messages found in the manuals and those displayed on the tractor and machine attachment.

### 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. With the purpose of highlighting situations or operations that may result in risks, the meanings of terms used in this manual are indicated here:

- **WORKING ZONE:** 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.
- **BYSTANDER:** 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.
- **USER:** the person, entity or company, who purchased or rented the machine and intends to use it according to the intended use foreseen by the manufacturer.
- **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 operators manual.
- **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.
- **GENUINE SPEARHEAD DEALER/ AUTHORIZED TRACTOR DEALER:** The Genuine Spearhead Dealer/ Authorized Tractor Dealer, 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.

## 2.3 Unauthorized Conversions And Modifications Are Prohibited



2.3.1.1 **IMPORTANT:** Do not make any unauthorized conversions or modifications to the hedge cutter.



2.3.1.2 **IMPORTANT:** Conversions or modifications are prohibited without the written permission of the manufacturer and exclude liability for resulting damages.

## 2.4 Personnel Qualification And Training



2.4.1.1 **IMPORTANT:** The cutterbar should be used, maintained and repaired only by specialised personnel who are familiar with the system and have been instructed about the dangers.



2.4.1.2 **IMPORTANT:** The area of responsibility, competence and supervision of personnel must be exactly defined by the operator.



2.4.1.3 **IMPORTANT:** If the personnel do not have sufficient skills, they must be trained and instructed.



2.4.1.4 **IMPORTANT:** The operator must ensure that personnel have read and understood the contents of this operating manual.



2.4.1.5 **IMPORTANT:** Repairs that are not described in this operating manual may be carried out only by a genuine Spearhead dealer.

## 2.5 General Safety Information



2.5.1.1 **IMPORTANT:** The operator must follow the safety instructions described here, abide by the national regulations regarding general safety. The responsibility for this rests with the user.



2.5.1.2 **IMPORTANT:** The relevant safety regulations and the generally accepted rules on safety technology and occupational health, as well as the Road Traffic Act, must be complied with.



2.5.1.3 **IMPORTANT:** The safety instructions of the manufacturer of the tractor or tool carrier must be followed.



2.5.1.4 **IMPORTANT:** At each start-up, the hedge cutter must be checked for operational safety, for damaged, missing or worn parts. Any defects identified must be rectified promptly before the cutterbar begins work.



2.5.1.5 **IMPORTANT:** Safe operation of the cutterbar is only ensured if the knives are properly installed. Use suitable tools for the installation.



2.5.1.6 **IMPORTANT:** The protective devices must be checked regularly, and damaged protective devices must be replaced.



2.5.1.7 **IMPORTANT:** Only spare parts that are supplied by or have the explicit approval of the manufacturer must be used. The manufacturer accepts no liability and provides no guarantee in the event of damage or injury caused by the use of non-original/genuine Spearhead parts.




















## 2.6 Safety Information For Operation











2.6.1.1 **IMPORTANT:** Familiarise yourself with all devices and operating components, as well as their function, before starting the work.













2.6.1.2 **IMPORTANT:** Wear close-fitting clothes and use the necessary personal protective equipment.

-  2.6.1.3 **IMPORTANT:** Check all mechanical and hydraulic connections and all installed safety devices for their functionality before using the machine.
-  2.6.1.4 **CAUTION!** Check that the hydraulic hoses are correctly positioned. Hydraulic hoses that get caught up or crushed may cause personal injury (e.g. as a result of seeping hydraulic oil) or damage to the machine.
-  2.6.1.5 **IMPORTANT:** Ensure all supporting devices are in the right position before mounting or demounting.
-  2.6.1.6 **IMPORTANT:** Always place counter-weights on the mounting points provided for this purpose.
-  2.6.1.7 **IMPORTANT:** Observe the limits for axle load, total weight and transport objective.
-  2.6.1.8 **IMPORTANT:** Install and check the transport fittings such as lights and warning and protective devices.
-  2.6.1.9 **IMPORTANT:** Install extra lighting if the lights fitted to the tractor or tool carrier as standard are hidden by the equipment when it is in transport mode.
-  2.6.1.10 **WARNING!** Check the immediate surroundings for persons, especially children, and animals and obstructions before start-up and before you start driving. You must be sure that you have ample vision and a sufficient safety distance.
-  2.6.1.11 **WARNING!** The hedge cutter's working area must be clear of persons when the engine is running.
-  2.6.1.12 **WARNING!** Other persons are not allowed to drive the hedge cutter during operation or transport.
-  2.6.1.13 **IMPORTANT:** Fold the hedge cutter or loader frame on the tractor or tool carrier together in transport mode.
-  2.6.1.14 **WARNING!** Before transport, you must secure the controls on the hedge cutter in the tractor against unintentional activation. Ensure the PTO is disengaged.
-  2.6.1.15 **WARNING!** Never leave the driver's seat during transport.
-  2.6.1.16 **IMPORTANT:** Adjust the speed to the current local road and traffic conditions. Avoid sudden changes of direction when travelling up or down hill and when travelling across an incline.
-  2.6.1.17 **IMPORTANT:** Beware of the effects the mounted hedge cutter and cutterbar have on the driving behaviour and the steering and braking ability.
-  2.6.1.18 **WARNING!** Only start the hedge cutter up when all protective guards are demounted.
-  2.6.1.19 **DANGER!** Be particularly careful when working under high voltage cables. Keep a distance of at least 10 m from high voltage cables.
-  2.6.1.20 **DANGER!** If you run into an obstruction, you must stop the hedge cutter immediately and check it for damage.
-  2.6.1.21 **DANGER!** Before getting down from the tractor or tool carrier, you must place the hedge cutter and cutterbar on the ground, remove the ignition key and secure the vehicle, to prevent it from rolling.

-  2.6.1.22 **DANGER!** The hedge cutter may carry on running after it is switched off. Wait until it has stopped entirely.
-  2.6.1.23 **WARNING!** During work breaks you should place the hedge cutter on the ground and install the Knife Guard and safety guards.
-  2.6.1.24 **DANGER!** With hydraulically activated parts there is a risk of body parts becoming crushed and detached. The hydraulic installation may be under pressure.
-  2.6.1.25 **WARNING!** Liquids (hydraulic oil) that are under great pressure and seep out may penetrate the skin and cause serious personal injury. In the event of personal injury, you should seek the help of a doctor immediately, as there is a risk of infection.
-  2.6.1.26 **IMPORTANT:** Only connect hydraulic hoses when the hydraulic installation is free of pressure.
-  2.6.1.27 **IMPORTANT:** Check the hydraulic hoses regularly for leakage, damage and ageing. Damaged hydraulic hoses must be replaced promptly. The new hydraulic hoses must meet the manufacturer's technical requirements.
-  2.6.1.28 **IMPORTANT:** Oil leaks pose a hazard to the environment. Hydraulic oil seepage must be collected and disposed of in the proper manner.
-  2.6.1.29 **WARNING!** Use protective goggles when looking for leakages.

## 2.7 Safety Information For Assembly, Maintenance And Repair Work

-  2.7.1.1 **IMPORTANT:** Mounting, maintenance and repairs must be carried out exclusively by authorised and qualified specialists.
-  2.7.1.2 **IMPORTANT:** Work on the machine may only be carried out when the machine is stationary.
-  2.7.1.3 **IMPORTANT:** Always follow the procedure for stopping that is described in the manufacturer's instruction book.
-  2.7.1.4 **IMPORTANT:** Wear close-fitting clothes and use the necessary personal protective equipment.
-  2.7.1.5 **WARNING!** If you have to carry out maintenance on the cutterbar while it is raised, it must be secured with a suitable support.
-  2.7.1.6 **WARNING!** Release the pressure in the hydraulic installation before starting any works on the cutterbar.
-  2.7.1.7 **WARNING!** Some of the cutterbar parts may be very hot. Allow the cutterbar to cool off.
-  2.7.1.8 **IMPORTANT:** Handle and dispose of oils and grease in accordance with the rules.
-  2.7.1.9 **WARNING!** All safety and protective devices must be installed or activated again immediately after a work session is finished.
-  2.7.1.10 **IMPORTANT:** When starting up the machine again, you must follow the instruction book from the loader frame or tractor manufacturer.

## 2.8 Dangers Due To Overhead Power Lines

There are significant dangers involved when working in the vicinity of Overhead Power Lines (OHPL's). Be aware that some Spearhead machines are capable of reaches in excess of 8 metres (26') and have the potential to well exceed; (by possibly 3 metres (9' 9")); the lowest legal minimum height of 5.2 metres from the ground for 11,000 and 33,000 volt power lines, see Figure 2.1.



**DANGER!** All operators must read the following information and be aware of the risks and dangers involved when working in the vicinity of Overhead Power Lines (OHPL's).



**WARNING!** Fatal electrocution can occur without contacting a power line. Due to the high electrical potential between the conductors and the ground a flash over can occur from the power line to any conducting medium within range. Steel cutting machines are ideal conductors.

Wherever possible the safest option is always to avoid working in areas close to OHPL's. Where unavoidable, all operators must perform a risk assessment and implement a safe procedure and system of work, see Section 2.8.1 below.

All operators should perform a risk assessment before operating any reach arm mower within 10m horizontal distance of any OHPL's. If you are unsure do not work in the area. Never put yourself or others at risk.

### 2.8.1 Risk Assessment

Before starting to work near OHPL's you should always assess the risks. The following points should be observed;

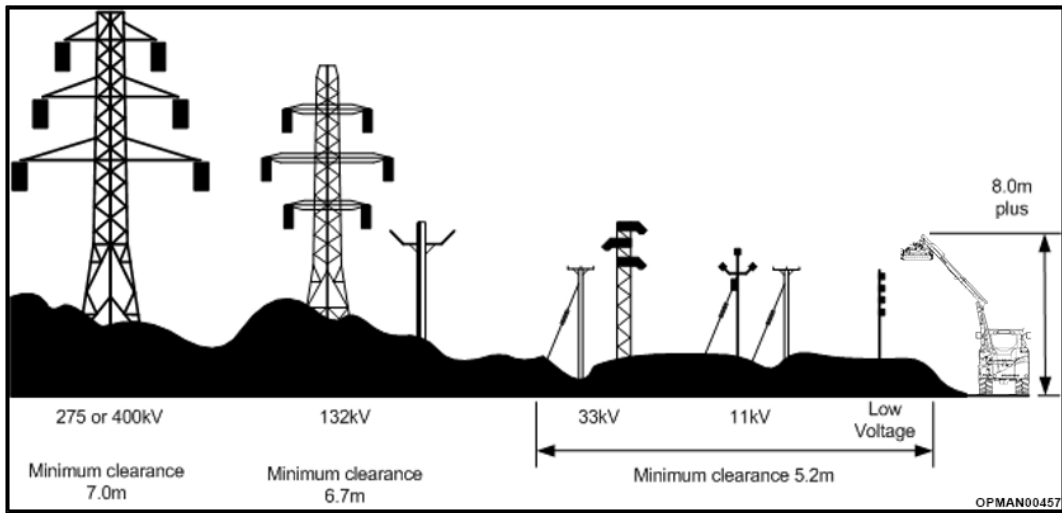
- **Know** the risks of contacting OHPLs and the risk of flashover.
- Always **find out** the maximum reach height for your machine mounted on the tractor.
- Always **find out** the location and route of all Power Lines within the work area.
- Always **find out** the operating voltage of all Power Lines within the work area.
- Always **contact** the local Distribution Network Operator (DNO) who will be able to advise you on the operating voltage, exclusion zones, the minimum safe working distance and any additional precautions required.
- **Never** attempt to operate the machine within an exclusion zone.
- Always **work with extreme caution and plan your work ahead** to avoid high risk areas.
- **If doubt exists** do not work in the area – never risk the safety of yourself or others

Further information and leaflets on this and other agricultural safety subjects are available on the 'Health & Safety Executive' website at the following address: [www.hse.gov.uk/pubns/agindex.htm](http://www.hse.gov.uk/pubns/agindex.htm)

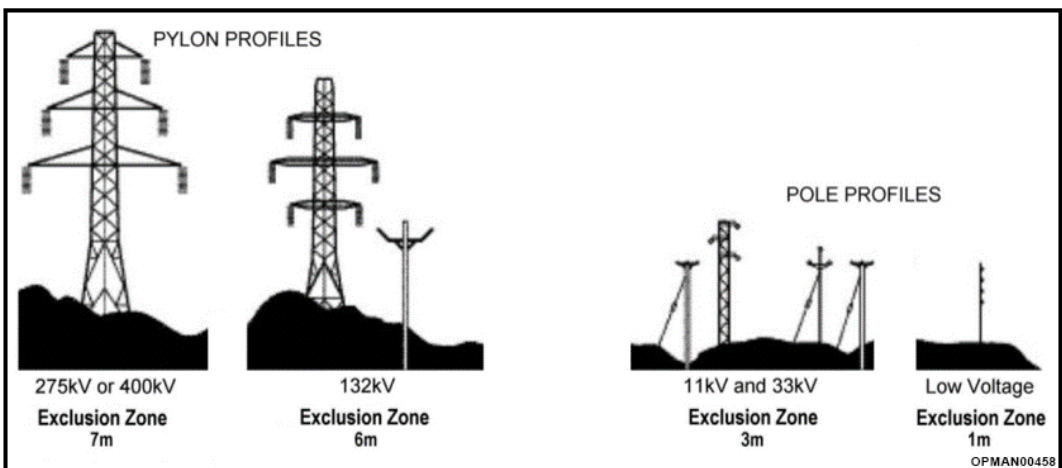
### 2.8.2 Emergency Action for Accidents Involving Electricity

- Never touch an overhead line - even if it has been brought down by machinery, or has fallen. Never assume lines are dead.
- When a machine is in contact with an overhead line, electrocution is possible if anyone touches both the machine and the ground. Stay in the machine and lower any raised parts in contact or drive the machine out of the lines if you can.
- If you need to get out to summon help or because of fire, jump out as far as you can without touching any wires or the machine keep upright and away.
- Get the electricity company to disconnect the supply. Even if the line appears dead, do not touch it - automatic switching may reconnect

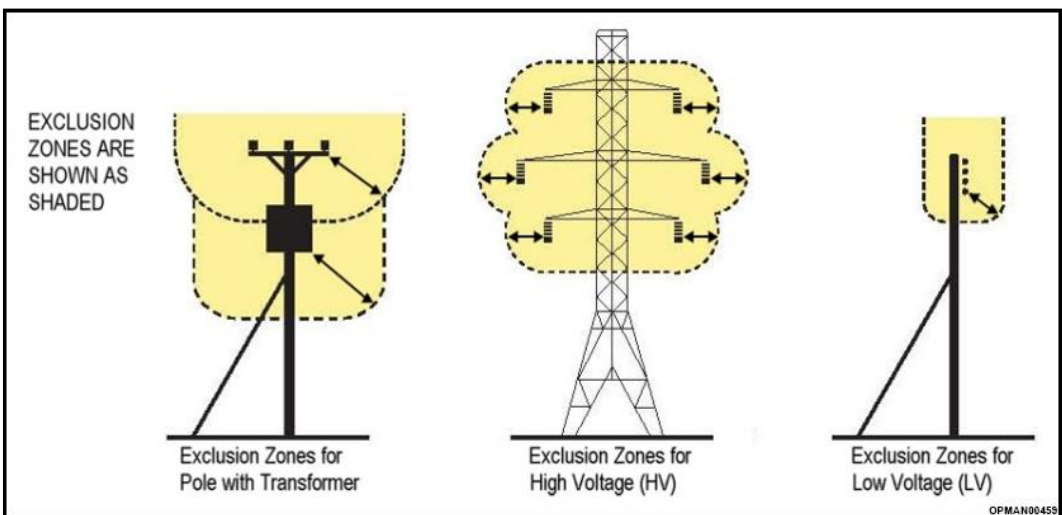




**Figure 2.1 - Minimum Heights For Overhead Power Lines**



**Figure 2.2 - Absolute Minimum Exclusion Zones For Specific Overhead Power Lines**



**Figure 2.3 - Definitions Of Exclusion Zones**

## 2.9 Safety Decals

Machine safety decals are located in various points on the machine; see Figure 2.4. They can be identified in yellow with the upper panel depicting the hazard, and the lower panel indicating means of avoidance or precautions to be taken. There are also personal protection equipment decals located on the machine advising the correct clothing to wear whilst using the machine. These can be identified in blue and white indicating the equipment required. These decals have no text. It is essential that all operators and personnel associated with the machine fully understand their meanings.

Safety decals should be kept clean and legible at all times. Any safety decals which are found to be missing or illegible should be replaced.

### 2.9.1 Definitions

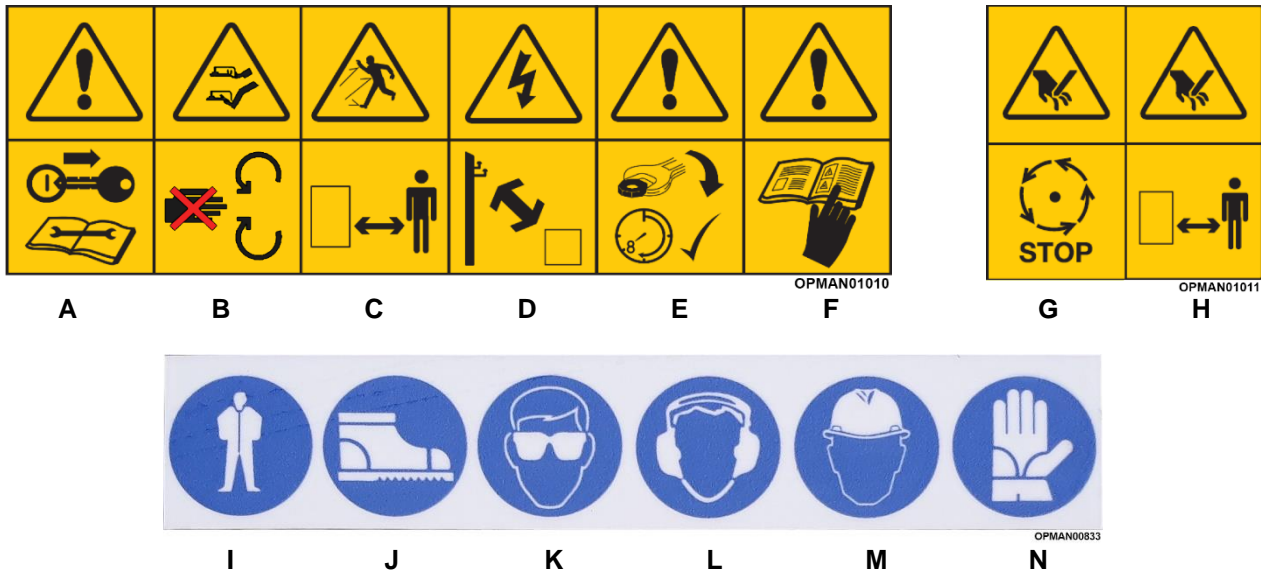


Figure 2.4 – SP Cutterbar Safety Decal

|   |  |  |
|---|--|--|
| a | Warning: - Remove key, before carrying out maintenance     | Switch off the engine, remove the key and pull the handbrake before carrying out any maintenance or repairs on the machine.  |
| b | Danger: - Cutting hazard from rotating knives              | Personnel should keep at distance from the machine when the machine is operating.  |
| c | Danger: - Flying debris                                    | Flying objects. Be sure to keep a distance to the machine when it is operating.  |
| d | Danger: - Electrocutation                                  | Always be aware of overhead lines. Between the electric masts there will always be a risk of touching the overhead lines. In case of doubt contact the local power plant for instructions on safety distances. |
| e | Instruction: - Check the tightness of fasteners            | Check every 8 hours that all fasteners are tightened.  |
| f | Warning: - Read operators manual, before using the machine | Read the instructions manual carefully before using this machine. Follow all instructions and safety precautions when using the machine.   |
| g | Danger: - Moving knives – stop the machine                 | The machine continues to rotate after stopping. Keep your distance until the machine comes to a complete standstill. Remember to use the hand brake and turn off the engine.                                   |
| h | Danger: - Moving knives – distance from the machine        | While the machine is operating. Keep a distance from people and animals. Turn the cutterbar off immediately if people or animals come close to the machine.  |
| i | Warning: - Personal protection equipment required          | Reflective and clear to see clothing must be worn when operating or near the machine   |
| j | Warning: - Personal protection equipment required          | Protective safety shoes must be worn when operating, servicing or being near the machine   |
| k | Warning: - Personal protection equipment required          | Protective eye protection must be worn when operating, servicing or being near the machine   |

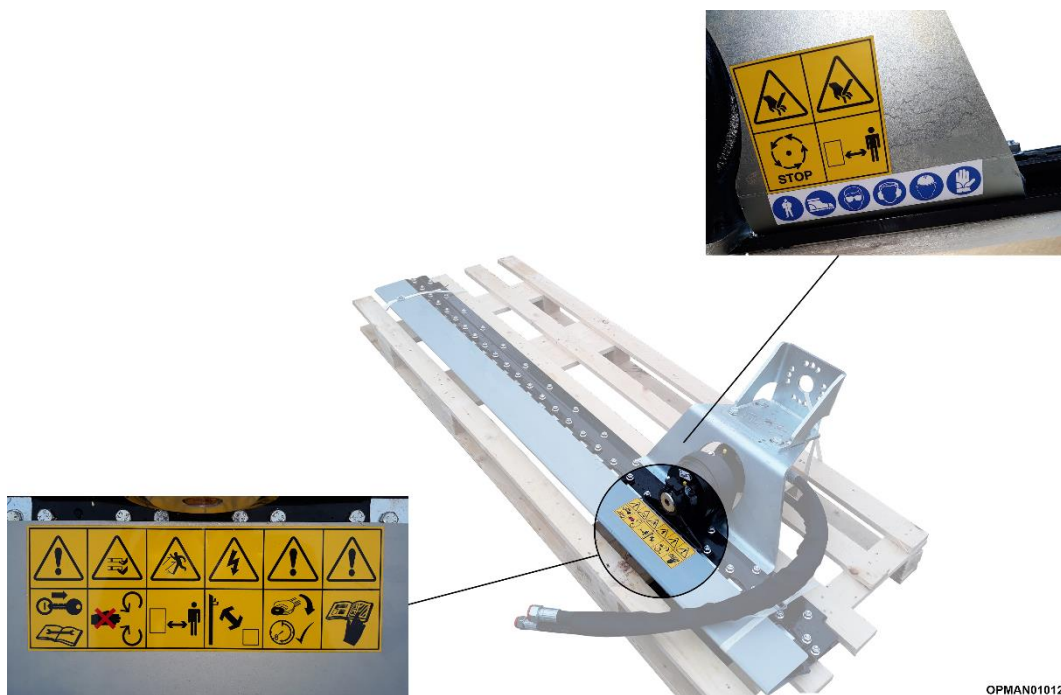
|   |   |  |
|---|---|--|
| l | Warning: - Personal protection equipment required | Hearing protection must be worn when operating or near the machine                 |
| m | Warning: - Personal protection equipment required | Head protection must be worn when operating, servicing or being near the machine   |
| n | Warning: - Personal protection equipment required | Protective gloves must be worn when operating, servicing or being near the machine |

**Table 2.1 – SP Cutterbar Safety Decal Definitions**

For the placement of these decals on each of these machines, please refer to Section 2.9.2.

### 2.9.2 Placement

Figure 2.5 states the particular positions safety and instruction decals are placed on each of the SP cutterbar models.



**Figure 2.5**

OPMAN01012

### 2.9.3 Replacement

It is of utmost importance that safety decals are kept clean and replaced if they are no longer legible, damaged or lost completely. Safety decals can be purchased readily from a local Spearhead dealer.

For more extensive guidance on ordering spare parts and how to go about finding the correct part number; see Section 7.

## 2.10 Guarding



**DANGER!** For safe operation it is essential that that all guards must be kept in position on the machine whenever the machine is running. Spearhead Machinery disclaim all responsibility for any damage or injury arising as a result of guards being removed, or of guards other than of Spearhead manufacture having been fitted, or of operation of the machine other than in accordance with these instructions.



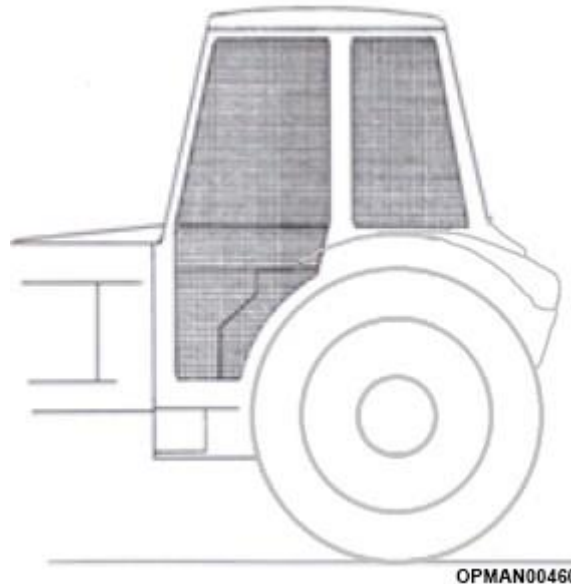
**DANGER!** When hedge cutting a mesh guard must be fitted to the side window of the tractor cab. Cabs without laminated or toughened glass must also be fitted with a laminated glass or polycarbonate shield in addition to the welded mesh guard.



**WARNING!** Inspect guards twice daily or immediately damage is suspected.

Always replace guards that have damage or wear which could impair their performance.

When using the machine on a loader frame or a forward reach reach arm, the machine attachment is in front and above the driver's cab. This makes it necessary to always work with guarding fixed around the front and side of the cab, a typical installation is shown below.



**Figure 2.6**

A machine safety cover guard covers the knife cutting area and must be kept in position when the machine is not operating or is being transported. They are an essential part of the machines guarding. The machine must not be transported or stored with this cover guard missing.

The cutterbar assembly itself has two fixed safety guards to protect the machine whilst operating. Knife arm guards are fitted in front of the knives in order to protect the machine from larger objects and to spread the soon to be cut material evenly across the machine and draw it into the cutting area. Safety end fingers protect the most outward blade from damage in a similar way. Both of these guards are an essential part of the machines guarding. The machine must not be operated with these guards missing.

|                                 |                        |
|---------------------------------|------------------------|
| <b>Machine Safety Guard</b>     | Distorted or insecure. |
| <b>Knife Arm Guards</b>         | Distorted or insecure. |
| <b>Safety End Finger Guards</b> | Distorted or insecure. |

**Table 2.2 – Permanent Protection Guard Damages**

Ensure that all parts are replaced if required with genuine Spearhead parts.

## 2.11 Personal Protective Equipment

Operators should be wearing sufficient personal protection equipment (PPE) to protect them from hearing, respiratory and impact damages.

When working in an unsealed cab or where windows and apertures are open to the environment, operators are advised to wear suitable eye and ear protection, a facemask (depending on conditions) and head protection.

When handling cutting surfaces or hydraulic equipment, operators are advised to wear suitable gloves.

When clearing blockages, clearing wire, or working with pressurised hydraulic components, operators are advised to wear suitable eye protection and suitable gloves.

Ensure that non-baggy clothing is worn to reduce the chance of entanglement and snagging on components.



**Figure 2.7- PPE Items**

When working at the work site, but off the tractor unit, operators are advised to wear a 'high-viz' garment.

## 2.12 Stability

Due to the design of the reach arm and the work they undertake, it is essential to ensure that the tractor is stable during work and transport in order to eliminate any risk of loss of directional control, imbalance or overturning.

Before work, extend the arms to full reach slowly and ensure that at full reach the rear wheel on the opposite side to the extended arms is still on the ground. It is advisable to have a helper to check this. Check that the tyre shows evidence of bearing some load.

If the tyre lifts then add ballast in the form of wheel weights to the rear wheel of the tractor opposite to the extended arms until the tyre shows evidence of bearing some load.

Before driving in transport, place the reach arm in the transport position and again check that all wheels of the tractor are both on the ground. Again, it is advisable to have a helper to check this. Check that the tyre shows evidence of bearing load. This is especially important to ensure forward directional control at speed on an undulating terrain.

If the front tyres lift add ballast weights to the front of the tractor.



**WARNING!** Failure to have sufficient load over the front axle or to drive at inappropriate speeds on undulating terrain may result in a loss of directional control.

If ballast weights have been added to the tractor, check that the plated tractor axle loads have not been exceeded.

**IMPORTANT:** When transporting on the highway, it is the responsibility of the operator to obey all relevant local highway laws.

## 2.13 Working On Inclined Ground

The ballast instructions in Section 2.12 are sufficient for level ground operation.

Be aware that when working on inclined ground changes in the tractor centre of gravity can adversely affect the overall stability. As the attachment is extended with the reach arm deployed downhill additional ballast will be required on the rear offside wheel to compensate.

There is naturally a limit to a safe amount of ballast compensation that can be applied for a given tractor unit and a given incline. If compensating ballast is applied and the compensated axle must be driven on the public highway to reach the work site the operator should ensure that the plated axle load is not exceeded.

Remember, a reach arm with machine attachment represents a significant mass which can generate a significant amount of inertia when moved at speed. Stopping this inertia suddenly can induce overturning reactions.



**DANGER!** When working on inclined ground avoid high speed hydraulic movements which could cause overturning.

## 2.14 Working On Embankments

Sudden potholes at speed can quickly cause the tractor to change direction. At the same time the weight of the attachments may try to lift the front axle. This is a potentially lethal combination when working along narrow embankments or dykes and can lead to overturning and potential drowning.

When working on top of embankments it is very important to have sufficient forward stability to ensure rapid steering control. Spearhead recommend 20% forward stability. This means that at least 20% of the total vehicle weight is acting on the steering axle under normal level conditions.



**DANGER!** When working on raised embankments ensure sufficient weight is on the steering wheels.

## 2.15 Attachment And Removal From The Reach Arm



**DANGER!** Always follow the manufacturer's instructions for attachment and removal of the machine from the tractor.



**DANGER!** Always disengage the machine, kill the tractor engine, remove and pocket the key before dismantling for any reason.



**DANGER!** Always ensure when you remove your machine from the tractor that it is left in a safe and stable position using the stands and props if provided and secured.



**DANGER!** Never operate the tractor or machine controls from any position other than from the driving seat.



**DANGER!** Never leave a machine unattended in a raised position – it should be lowered to the ground in a safe position on a level firm site.



**DANGER!** Never leave a tractor with the key in or the engine running.



**DANGER!** Ensure hydraulic pipes are carefully and correctly routed to avoid damage by chaffing, stretching or pinching and that they are held in place with the correct fittings.

## 2.16 Working In Public Places

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



**DANGER!** Always inspect the work area thoroughly before starting to note obstacles and remove wire, bottles, cans and other debris.



**DANGER!** Never use a machine that is poorly maintained.



**DANGER!** Use clear suitably sized warning signs to alert others to the nature of the machine working within that area. Signs should be placed at both ends of the work site. (It is recommended that signs used are of a size and type specified by the Department of Transport and positioned in accordance with their, and the Local Highways Authority, guidelines).



**DANGER!** Never start or continue to work a machine if people are nearby or approaching - Stop and wait until they are at a safe distance before continuing.



**WARNING!** Some cutting heads may continue to 'freewheel' for up to 40 seconds or more after being stopped.



**DANGER!** Never allow children near to, or play on, a tractor or machine under any circumstances.



**DANGER!** Never use a machine on which the hydraulic system shows signs of wear or damage.



**DANGER!** Always clear up all debris left at the work area, it may cause hazard to others.



**DANGER!** Never allow any bystanders within a 90 metre radius of the machine when operating. Stop the machine immediately if this safety area is entered and do not restart the machine until the bystanders have escaped the area sufficiently.

## 2.17 Safety Distances

Never allow any bystanders within a 90 metre radius of the machine when operating. Stop the machine immediately if this safety area is entered and do not restart the machine until the bystanders have escaped the area sufficiently and the working area has been reassessed.

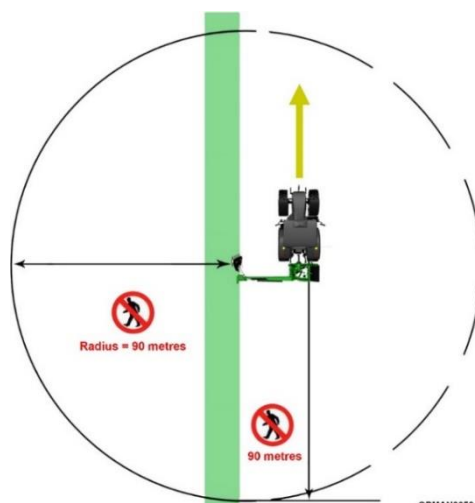


Figure 2.8

## 2.18 Warning Signs

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

### 2.18.1 Suggested Warning Signs Required

The reach arm machine must be fitted with a white on blue, 600mm diameter ‘Keep Left’ (\*) direction arrow. A white with red border ‘Hedge Cutting’ warning triangle of at least 750mm tall must be placed at no greater distance than 500m from the tractor at any time. These hedge cutting signs should also be placed at key restricted view areas such as bridges and sharp bends.

\*NOTE – this applies to UK Market machines where traffic passes to the right of a machine working in the same direction as the traffic flow. The direction, use and colour of the arrow depend on the country of use and the Local Highway Authorities regulations in the locality.

### 2.18.2 Use of Warning Signs

- On two-way roads, one set of signs is required to be facing in each direction.
- Work should be carried out within 500m of the signs. The signs will then be required to be moved.
- Work only when visibility is good and at times of flow e.g. NOT during ‘rush-hour’.
- Vehicles should have at least one 360° visible amber flashing beacon (preferably two) or a light bar comprising at least two independent light sources which are clean.
- Ideally, vehicles should be clean and conspicuously coloured with high visibility rear markings.
- Debris should be removed from the road and path as soon as practicable, and at regular intervals, wearing high visibility clothing and before removing the hazard warning signs.
- Collect all road signs promptly when the job is complete.



Figure 2.9

OPMAN00476



## 2.19 The Machine & The Environment

Below are the minimum provisions to be followed in order to reduce the risk of environmental impact connected to the use of the machine:

- If the Country where the machine is used foresees specific sound emission limits, it is best to adapt to the provisions in these standards, if necessary, being supplied with suitable protective equipment (earplugs, muffs, etc.).
- **It is mandatory** to respect current legislation of the Country where the attachment is used, related to use and disposal of lubricants and products used for machine cleaning and maintenance, observing the recommendations of the manufacturer of those products.
- If replacing worn parts or during demolition, one must follow anti-pollution laws foreseen in the country where the attachment is used.
- **It is prohibited** to pour products used for cleaning or polluting substances into the sewerage drain, on the ground, in watercourses, or into the environment.
- **It is mandatory** to collect products used for cleaning and polluting substances in appropriate containers, store them and deliver them to companies authorised for their disposal.

### 2.19.1 Disposal

When Spearhead equipment reaches the end of its economic working life it should be disposed of responsibly, either through an approved recycling centre or by compliance with all regulations in force in the destination territory.

In most instances Spearhead machines can be broken into its constituent parts with the use of basic workshop equipment. Table contains a typical list of constituent materials, together with disposal guidelines.

When undertaking a machine breakdown, take care to ensure that heavy parts are always adequately supported to avoid injury.

To avoid environmental contamination, take containment precautions to retain control of liquids in order.

It is the owner's responsibility to ensure the machine is disposed of in accordance with all applicable regulations.

| Material       | Typically found in;   | Disposal guideline   |
|----------------|---|--|
| Steel          | Structural components, fixed guards, fasteners and driveline  | Can be dismantled and recycled. Take care when handling heavy and/or sharp objects   |
| Aluminium      | Pump and gearbox housings, serial number plates   | Can be dismantled and recycled. Take care when handling heavy and/or sharp objects. Take appropriate actions for oil contaminated products |
| Copper         | Wiring, electrical components   | Can be recycled using appropriate recovery procedures.   |
| Hydraulic oil  | Tank, hydraulic components  | Dispose of in accordance with all applicable regulations   |
| Rubber         | Hoses, flexible guards, seals, 'O' rings  | Dispose of in accordance with all applicable regulations   |
| Plastics       | Clips, caps, cable ties, decals, filter housings, document holders, bushes, electrical components, plugs, connectors, wire insulation | Dispose of in accordance with all applicable regulations   |
| Filter element | Filter housings   | Dispose of in accordance with all applicable regulations   |
| Cork / paper   | Gaskets   | Dispose of in accordance with all applicable regulations   |

**Table 2.3 – Machine Breakdown Component Disposal**

## 2.20 Proposition 65



**Figure 2.10**

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.

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## 3 Machine Preparation

### 3.1 Lifting The Machine



**IMPORTANT:** Operating lifting and moving equipment should only be carried out by operators that are trained and familiar with the use of the machinery and their controls. Refer to each of the relevant operator manuals for guidance or gain professional training before using the equipment. Starting the machine should only be carried out once the machine and work site has been inspected and deemed safe and all other safety cautions have been adhered to.



**DANGER!** Ensure that all bystanders are sufficiently clear of the lifted machine when moving and ensure there is a safety area. Stop the lifting equipment immediately if this safety area is entered and do not restart procedures until the bystanders have escaped the area sufficiently.

#### 3.1.1 Lifting Equipment

Spearhead recommends that the cutterbar is stored on a substantial and suitable pallet in good condition when not in use. If it needs to be moved use a pallet lifter or forklift or sufficient capacity to cater for the weight of the cutterbar.

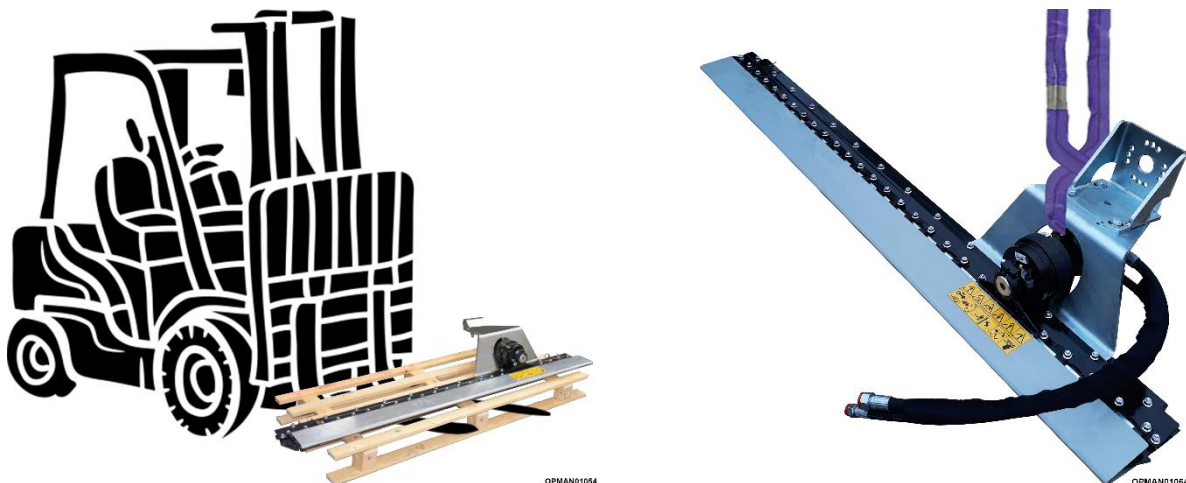
Suitable overhead lifting equipment with a minimum Safe Working Load (SWL) in excess of the machine's overall weight can be used as an alternative for handling the machine. Ensure the machine is kept balanced and level at all times during the lifting procedure. All operatives and bystanders must remain at a safe distance from the raised machine.

#### 3.1.2 Lifting Points

Spearhead recommends lifting the machine with an approved sling securely looped around the cutterbar mount bracket to preserve the condition of the machine. The sling should be tightened to ensure the machine is balanced and stable when lifted; see Figure 3.1.

Keep clear of the raised machine at all times.

For lifting the machine around on a pallet ensure that the machine is centered and secure from sliding off the pallet during transportation.



| Model Weights |               |
|---------------|---------------|
| SP15          | 65kg (143lbs) |
| SP18          | 72kg (159lbs) |
| SP21          | 80kg (177lbs) |

**Figure 3.1**

## 3.2 Post-delivery/First Use Inspection

### 3.2.1 Tractor Requirements

Before fitting the machine to the tractor ensure that specification of the tractor meets the requirements listed below.

### 3.2.2 Tractor Checks

3.2.2.1 Availability of tractor hydraulic service where the available flow is.

- **15-30 litres per minute at a maximum of 175 bar for Twiga Carrier loader frames.**
- **20-40 litres per minute at a maximum of 175 bar for Twiga Compact, Twiga Classic, Twiga Mid, Twiga Pro and Twiga Flex reach arms.**

3.2.2.2 A suitable mounting interface to the tractor is available.

3.2.2.3 Once the attachment is mounted to the reach arm and the tractor is correctly ballasted ensure that the maximum axle loads for the tractor have not been exceeded. Failure to meet this requirement may render the operator liable for infringement of public highway regulations.

3.2.2.4 Ensure that the tyres fitted to the tractor are correctly rated for the total working weight.

NOTE: When the attachment is deployed in work at the furthest reach the load on the rear tyre on the cutting side increases significantly.

3.2.2.5 Spearhead does not endorse the use of water ballast within tyres as this can have adverse effects on fore aft stability at speed.

### 3.2.3 Machine Adjustment

The cutterbar when received from Spearhead is virtually complete and components are set correctly, requiring minimum time to ready the machine for use. Spearhead machines are tested after manufacture.

It is important to assess the machine to ensure that it is of the correct specification ordered from Spearhead or local Spearhead dealer. Information with regards to the specification of the machine can be found on the serial plate. Guidance to the location of the serial plate can be found in Section 1.3.

Before use it is important to inspect the cutterbar following the guidance in this operators manual to ensure it is correctly set-up and is suitable for the attaching reach arm and tractor using the inspection guidance sheet in Section 5.8.

## 4 Usage Instruction

### 4.1 Operator Requirements



**IMPORTANT:** Read, understand and follow the safety messages stated throughout this section and the rest of this operator's manual. Serious injury or death may occur unless care is taken to follow the warnings.

Safe operation of the machine and accompanying reach arm is down to the responsibility of the qualified operator. A qualified operator has thoroughly read and understood the cutterbar, reach arm and attaching tractor operator's manuals and is experienced in the correct and safe operation of all machines and all associated safety guidance. In addition to the safety information contained in this manual, warning and operational decals are fixed around the machine; see Section 2.9. The connecting tractor and reach arm will also have them as well with information given in the operator's manual.

If any part of the operation safe use of the machine is not completely understood, consult a local Spearhead dealer or Spearhead for complete explanation.

If the operator cannot read the manuals for themselves or does not completely understand the operation of the equipment, it is the responsibility of the supervisor to read and explain the manuals, safety practices and operating instructions to the operator.

#### 4.1.1 Personal Protection Equipment (PPE)

See Figure 4.1

- Always wear safety glasses
- Hard hat
- Steel toe safety footwear
- Gloves
- Hearing protection
- Close fitting clothing
- Respiration or filter mask (depending on working conditions)



OPMAN00161

Figure 4.1 - PPE Items



**DANGER!** Do not use drugs or alcohol immediately before or while operating the tractor and accompanying machine attachments. Drugs and alcohol will affect an operator's alertness and concentration and ability to operate the collective machinery safely.

Before operating the collective machinery, a machine operator on prescription or over-the-counter medication must consult a medical professional regarding any side effects of the medication that would hinder their ability to operate the equipment safely.

Supervisors must **never** allow anyone to operate the collective machinery when it is known that their alertness or coordination is impaired. Serious injury or death could occur to the operator and/or bystanders if the operator is under the influence of drugs or alcohol.



OPMAN00162

Figure 4.2 – Do Not Use Drugs Or Alcohol

## 4.2 Controls Overview

Your Spearhead machine will be supplied without a control system and will rely on the auxiliary controls available with the tractor and reach arm. The operator must make sure he is familiar with the use of the tractor and reach arm auxiliary controls. Refer to each of the relevant operator manuals for guidance.

## 4.3 Machine Attachment



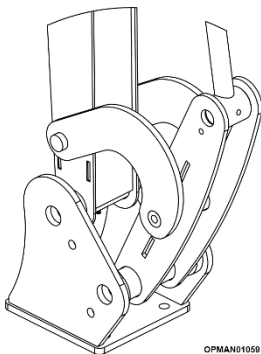
**WARNING!** Attachment of the machine must be performed on a firm level site.

Care should be adopted at all times when handling or manoeuvring the machine during the attachment procedure; ensure all persons remain clear of the cutting knives which possess the potential to cause injury even when stationary.



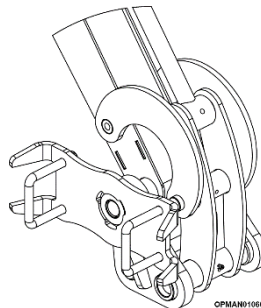
**WARNING!** While the tractor and reach arm is running all personnel should keep well clear of the area around the machine as there are numerous crushing, shearing, impact dangers caused by the machine operation. Do not stand between the mating faces of the reach arm and machine attachment.

**Mounting Type 1**



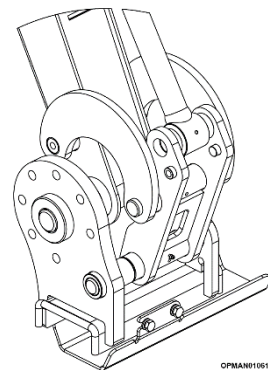
OPMAN01059

**Mounting Type 2**

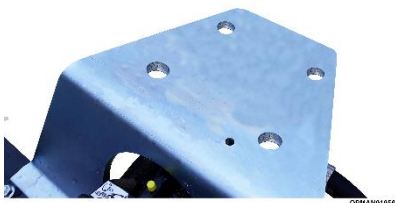


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**Mounting Type 3**

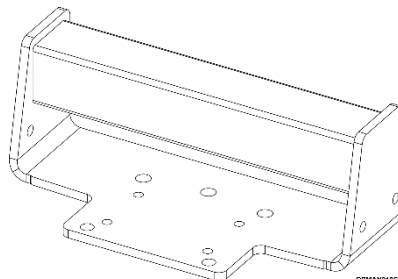


OPMAN01061



OPMAN01055

Suitable For Twiga Compact with 0.9m style flail head crowd bracket and Twiga Carrier



OPMAN01056

Suitable For Twiga Compact with 1.0m style flail head crowd bracket



OPMAN01057

Suitable For All Twiga Classic, Mid, Pro and Flex

**Figure 4.3**

The cutterbar can be mounted on Spearhead's range of Twiga reach arms; Twiga Compact, Twiga Classic, Twiga Mid, Twiga Pro and Twiga Flex. In addition, it can also be mounted on Spearhead's Twiga Carrier loader frame.

Always bear in mind that the maximum oil flow that the cutterbar needs is also the flow that the loader frame or hydraulic reach arm is able to supply.

Depending on which reach arm/loader frame you wish to fit the cutterbar will determine how the cutterbar will be required to be fitted to the reach arm. Some models require an intermediate adaptor bracket to be fitted to the cutterbar to allow it to be successfully fitted to the reach arm and others have a simple, direct fitment. Please see Figure 4.3 describing each of the various reach arm fitting options for the cutterbar.

Find a large space with firm ground and place the pallet with the cutterbar here and fold out the reach arm and place it into working position. Alter the angle of the head mounting interface of the reach arm either hydraulically using the reach arm controls or manually depending on the attaching reach arm to a horizontal position/level position with the ground.

Position the reach arm over the cutterbar mating flange surface, so that they almost touch each other.

For Twiga Compact with 0.9m style flail head crowd bracket and Twiga Carrier models, secure the cutterbar to the reach arm using the four bolts supplied, with washers and locking nuts.

For Twiga Compact with 1.0m style flail head crowd bracket models, secure the head mount bracket of the cutterbar to the reach arm using the two U bolts supplied with the reach arm, with washers and locking nuts.

For Twiga Classic, Mid, Pro and Flex models, secure the head mount bracket of the cutterbar to the reach arm using the four bolts supplied with the reach arm, with washers and locking nuts in a suitable position for operation.

#### 4.4 Machine Protection Guard



**CAUTION!** Do not attempt to run the machine with the machine protection guard fitted. Remove protection guard before starting the cutterbar.



**WARNING!** Removal of the machine protection guard must only be performed when the cutterbar is switched off and the oil free from pressure.

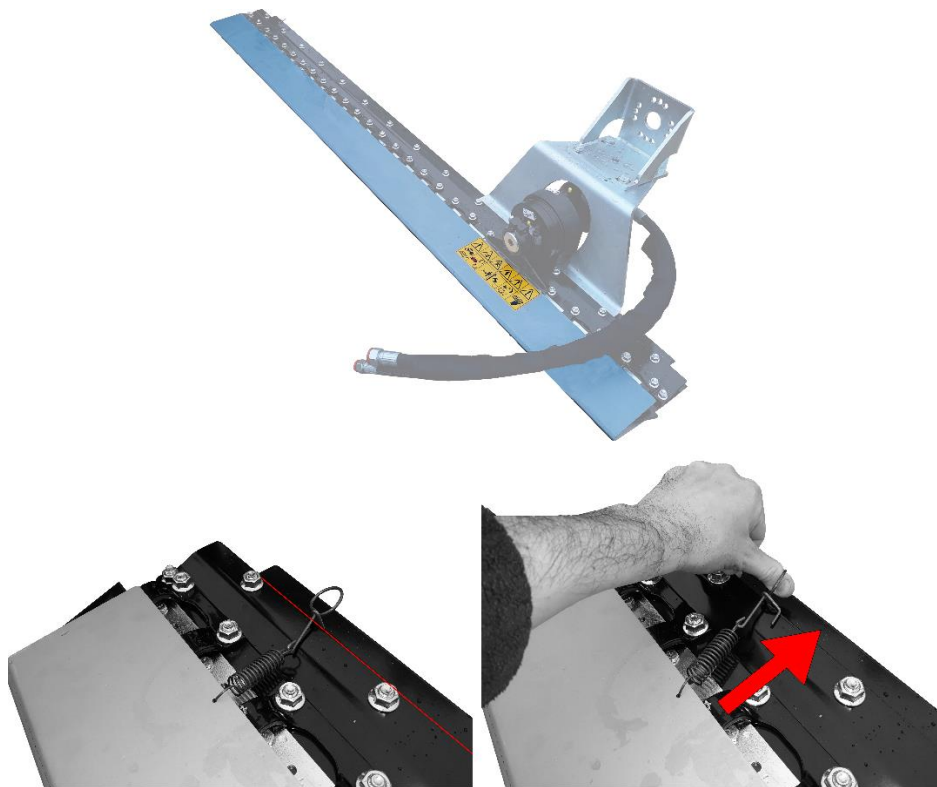


Figure 4.4

OPMAN01055



The machine protection guard must be removed prior to start up with the motor switched off and the oil not under pressure, and replaced only once the machine has stopped completely – the guard should be in position at all times during transportation of the machine as a means of safeguarding people and machine.

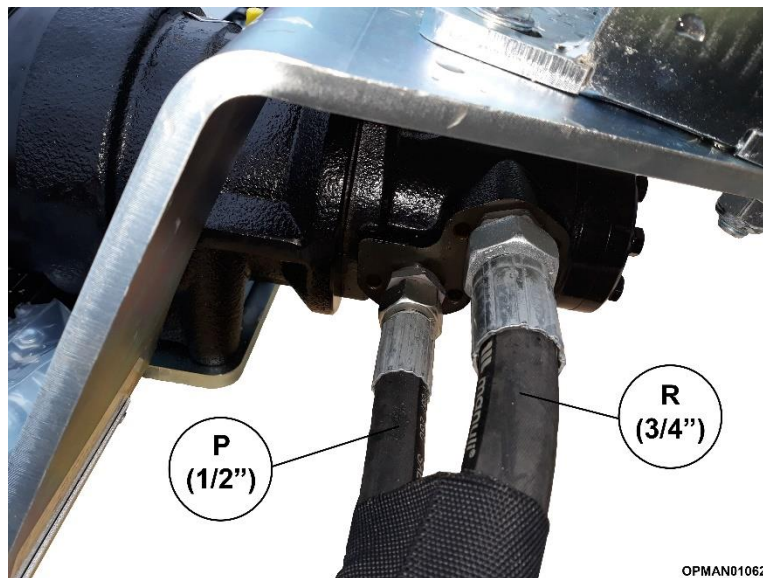
To remove/replace the guard, line the guard up parallel with the machine and utilising the spring fasteners, stretch the spring by hand to allow the hook to go over the back of the support rail.

## 4.5 Hydraulic Installation



**CAUTION!** Relieve hydraulic pressure before disconnecting lines or working on the system. This can be done by pushing and pulling the selected tractor lever/button. Only once this has been completed and suitable safety glasses and impenetrable gloves have been put on can the hydraulic hoses be removed from the tractor.

### Connecting



**Figure 4.5**

OPMAN01062

Manoeuvre the reach arm and cutterbar watching for bystanders and potential dangers in the vicinity to line up the cutterbar for attachment. With the tractor switched off and secured in position on level ground, relieve the hydraulic pressure from the tractor by moving the hydraulic control levers/buttons back and forth several times.

Connect the pressure and return hoses to the reach arm.

- 1/2" – Pressure (P) – see Figure 4.5 (P)
- 3/4" – Return (R) – see Figure 4.5 (R)

The motor can run both ways, the cutterbars knives have the same movement in either direction of motor rotation. Therefore the hydraulic hoses can be mounted the other way round.

SP Cutterbar machines are detachable and when disconnected it is important to keep the ends free of contamination and dirt. Utilise blanking plugs on the open adaptor ends in order to ensure no dirt or contaminants enter the motor. Never disconnect a hydraulic hoses and leave ends exposed.

**IMPORTANT:** Ensure that all the hydraulic hoses are collated together and placed through any hydraulic hose guide on the reach arm. This is to ensure that they do not get pinched or caught in use.

Switch machine off and inspect the hoses and connections for signs of leaks.

## **Disconnecting**

**IMPORTANT:** The machine should be secure at all times when left unattended so it doesn't move. Ensure that the machine is stored off the ground, preferably in a dry location to preserve its condition; for example on a pallet.

Manoeuvre the reach arm and cutterbar watching for bystanders and potential dangers in the vicinity to line up the cutterbar for detachment. With the tractor switched off and secured in position on level ground, relieve the hydraulic pressure from the tractor by moving the hydraulic control levers/buttons back and forth several times.

When disconnecting the hoses to the tractor it is important to keep the hoses, and end couplings free of contamination and dirt. Never disconnect a hydraulic hose and leave the coupling end exposed. Utilise blanking plugs to keep them contaminant free. If any component is deemed dirty ensure that it is cleaned with some clean rag.

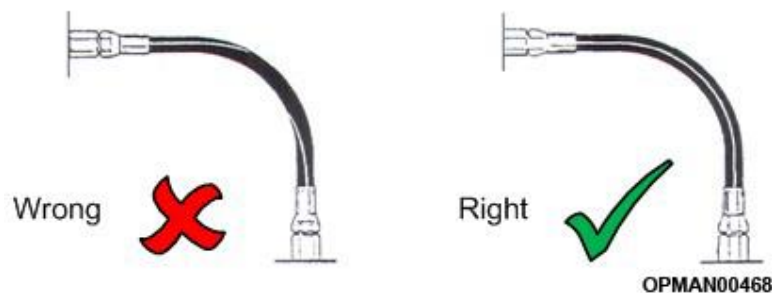
## **4.6 Hydraulic Hose Checks**

It is important that hoses are fitted correctly. Always check all hoses to ensure that there are no kinks or sharp bends, and that the hoses do not chafe against sharp edges. The following guidelines should be used when checking the hosing of the machine prior to work;

### **4.6.1 Twists**

Hoses should never be twisted or kinked. On most hoses there is a line which runs the full length of the hose acting as a useful guide. If a visual check reveals that no guideline is present along a hose, refer to Figure 4.6 and conduct the following check;

- 4.6.1.1 Loosen any clamps.
- 4.6.1.2 Attach one end of the hose to its coupling, but do not tighten.
- 4.6.1.3 Place the hose in its required position.
- 4.6.1.4 Connect the other end loosely to its union.
- 4.6.1.5 Tighten the end of any angled fittings first ensuring it is in the right position for its intended run.
- 4.6.1.6 Now tighten the straight end. It is possible that as the nut is tightened the hose may twist slightly.
- 4.6.1.7 If this happens, slacken off the nut and turn the hose in the opposite direction to that caused by tightening. Then, re-tighten the nut bringing the hose back to the central position.
- 4.6.1.8 Otherwise tighten the fitting fully. Torque settings for both BSP and Metric hose fittings are shown in Section 5.7.2.
- 4.6.1.9 Tighten any clamps.
- 4.6.1.10 Finally re-bleed the rams and operate the arms in all positions whilst carefully checking for any twists and obstructions.



**Figure 4.6**

## 4.6.2 Sharp Bends

Hoses should always be fitted to allow enough hose radius for free movement, see Figure 4.7. It is also important to avoid sharp bends in hoses. As a general guideline, hoses should not be bent round a radius smaller than ten times the hose diameter. This will vary with hose construction and any queries about specific hoses should be addressed to the Spearhead Machinery service department.

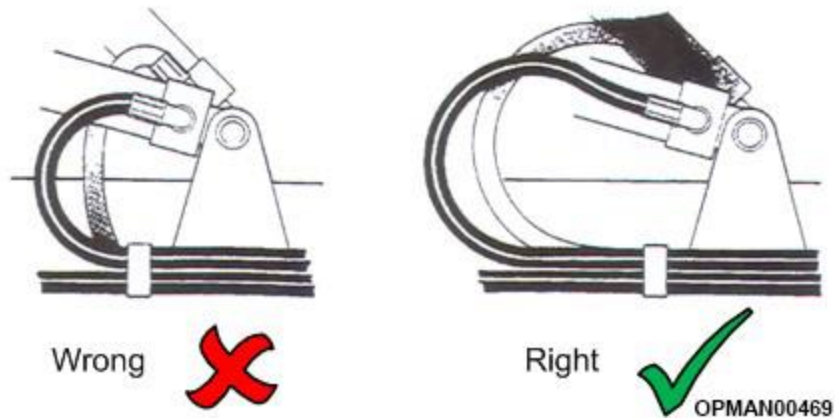


Figure 4.7

## 4.6.3 Chafing Hoses

It is important that hoses are fitted and clamped so that hose chafing is avoided. Always give plenty of clearance around sharp edges see Figure 4.8.



Figure 4.8

## 4.7 Work Site Assessment

### 4.7.1 Foreign Debris Hazards

The destined work site to use the machine should be thoroughly checked and familiarised to assess the working area for hazards; removable and fixed.

Items should be assessed, removed or clearly marked (e.g. if too heavy to move) before cutting:

- Items and ground characteristics which could cause a reduction in the tractors stability and traction and operator safety and ease of control in operation
- Insufficient lighting should be improved upon via external lighting additions or lighting supplied by the prime mover.
- Foreign objects which could be picked up and then flung by the machine damaging and causing risk to bystanders, operator, tractor or the nearby environment. Items seen on the surface and buried deeply in the material. For example rocks, tree stumps and metal girders
- Foreign objects which could be picked up and then damage the machine; for example wire.
- Items which could create a fire risk

In overgrown areas which could potentially hide debris that could be struck by the knives, the area should be: inspected and large debris removed, cut at an intermediate height and then re-inspected closely with any remaining debris being removed. Then cut at the desired final height. This will also bring benefits to operations with reduced power requirements to cut, reduce wear and tear on the machine, leave less cut debris and give a better overall finish.

Always wear your seat belt securely fastened and only operate the tractor and reach arm with the Roll-over Protection Structure (ROPS) in the raised position. If the tractor or reach arm hits a solid item, a sudden movement could throw you off of the seat and under the tractor and machine. The seat belt is your best protection from falling off the tractor and the ROPS provides protection from being crushed during a tractor roll-over. Cab guarding should be mandatory fitted to the tractor.

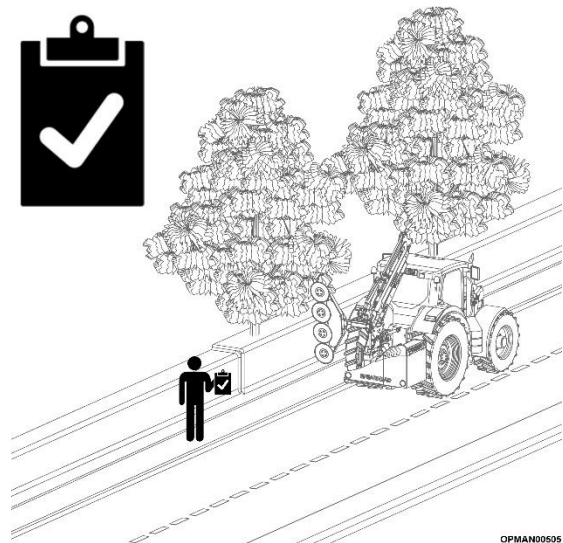


Figure 4.9 – Inspect The Work Site

It is important to inspect the reach arm and attachment to ensure all mandatory fixed and removable guarding is in position and in correct working order before proceeding to begin work.



**WARNING!** Extreme care should be taken when operating near loose objects such as gravel, rocks, wire, and other debris. Inspect the area before cutting. Foreign objects should be removed from the site to prevent machine damage and/or bodily injury or even death. Any objects that cannot be removed must be clearly marked and carefully avoided by the operator. Stop cutting immediately if the knives strikes a foreign object.

**IMPORTANT:** Repair all damage and make certain that knives are straight before resuming cutting.



**WARNING!** Many varied objects, such as wire, cable, rope, or chains, can become entangled in the machine. These items can swing outside the confines of the safe cutting area of the machine at greater velocities than the knives. Such a situation is extremely hazardous and could result in serious injury or even death. Inspect the cutting area for such objects before cutting. Remove any like object from the site. Never allow the cutting knives to contact such items.

## 4.7.2 Bystanders

It is of utmost importance that the tractor and reach arm and attachments are stopped immediately if a bystander comes within 90m (300 ft) while operating. The engine should be idled and the PTO disengaged. Do not restart work until the bystander is well past the 90m (300 ft) and the work zone has been reassessed to ensure there are no external risks.



Figure 4.10 –Bystanders Out Of Working Area

## 4.7.3 Weather

**Cut only in conditions where you have clear visibility** in daylight or with adequate artificial lighting. Never cut in darkness or foggy conditions where you cannot clearly see **at least 90m (300 feet)** in front and to the sides of the tractor and reach arm. Make sure that you can clearly see and identify passersby, steep slopes, ditches, drop-offs, overhead obstructions, power lines, debris and foreign objects.

If you are unable to clearly see these type of items do not begin cutting.

## 4.7.4 Fire

Follow the following guidelines to reduce the risk of equipment and grass fires while operating, servicing, and repairing the machine:

- Ensure the **tractor is equipped with a fire extinguisher** in an easy to access location
- **Do not** operate the reach arm and machine on a tractor with an underframe exhaust
- **Do not** smoke or have an open flame near the machine
- **Do not** drive into burning debris or freshly burnt areas
- Never allow clippings or debris to collect on top of the machine
- Periodically shut down the tractor and machine and clean clippings and collected debris from the cowl

## 4.8 Using The Cutterbar

### 4.8.1 Pre-start Checks

Only operate the reach arm and attachment from the tractor operator's seat with the seatbelt securely fastened. The tractor must be equipped with a ROPS cab and cab guarding.



**WARNING!** Do not let the knives touch the ground for any reason. Allowing the knives to hit the ground may cause it to break and parts to be ejected from the machine resulting in serious damage and injury or even death to operator or bystanders.



**WARNING!** Do not put hands or feet near the knives during operation or when the machine is static. Knife contact can result in serious injury or even death. Stay away until all motion has stopped and the hydraulic pressure in the system has been successfully relieved.



**WARNING!** Never use the machine with a broken or bent knife.



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

Ensure you wear all Personal Protection Equipment (PPE) as stated in Section 4.1.1

- 4.8.1.1 Check that the cutterbar, hedge cutter and tractor are free from defects. If a part is missing, loose or damaged; the machine must not be used.
- 4.8.1.2 Check that all mechanical and hydraulic connections, the hydraulic hoses and transport fittings (e.g. lights, warning and protective devices) are fixed properly and fully functional.
- 4.8.1.3 Remove any transport supports.
- 4.8.1.4 Move the tractor to a suitable location where there is at five metres of space all the way around the vehicle.
- 4.8.1.5 Turn the reach arm into work position.
- 4.8.1.6 Remove the machine protection guard found on the front of the cutterbar following the guidance given in Section 4.4.
- 4.8.1.7 The machine is designed to work vertically but can be angled to work at a maximum angle of 45°. The position should be considered in order to make sure debris doesn't hit the tractor. When cutting hedges always start from the bottom vertically.

The machine should NEVER be used at angles which could cause debris to get thrown towards the tractor or other bystanders, vehicles or buildings.

**IMPORTANT:** Starting the machine should only be carried out once the machine and work site has been inspected and deemed safe and all other safety cautions have been adhered to.

At every opportunity and before getting into the cab and starting the engine perform the following inspections;

- 4.8.1.8 Check that the cutterbar is free from obstructions especially pieces of wire.
- 4.8.1.9 Check that the knives are in good condition, straight and securely attached.
- 4.8.1.10 Check that all guards are in their correct place and in good condition.
- 4.8.1.11 Check that the tractor is equipped to deliver the correct hydraulic flow and pressure for the attachment.

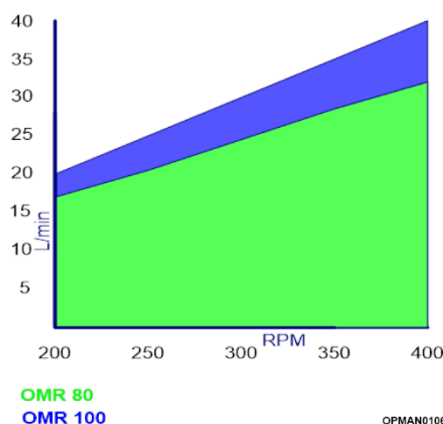
Refer to the operator manuals for the tractor and reach arm.

Spearhead SP cutterbars can be supplied with different motors depending on the carrying reach arm in which they're meant to be fitted to. See Table 4.1 For guidance on the correct oil flow requirement for the specification of cutterbar supplied.

|  | Motor   | Reach Arm                      | Oil Flow Requirement |
|--|---------|--------------------------------|----------------------|
|  | OMR 80  | Twiga Carrier                  | 15-30 l/min          |
|  | OMR 100 | Twiga Compact/Classic/Mid/Flex | 20-40 l/min          |

**Table 4.1**

The maximum quantity of oil generally ensures optimal power and best performance, but if hedges are dense with thin branches and leaves, a lower RPM can achieve better results.



**Figure 4.11**

**IMPORTANT:** After the cutterbar is started up for the first time, you should check the tightening torque on all fasteners after the first initial 10 minutes of running.

## 4.8.2 Starting The Cutterbar

Once pre-start checks have been carried out, the machine is can then be started.

- 4.8.2.1 Start the machine at low oil flow (low rpm). If the machine is starting from cold, warm the machine up for approximately 15 minutes to heat up the oil.

Ensure that the machine is never started in material where it will have to work under load.

- 4.8.2.2 Slowly increase rpm until the correct oil flow quantity requirement is reached.
- 4.8.2.3 Never attempt to restart the attachment if there is something strained/wedged in the machine. Stop the machine and the vehicle engine. Relieve hydraulic pressure before inspecting or trying to address the problem. Remove the ignition key and engage the handbrake. Only then it is safe to remove the wedged in material. Always wear safety glasses and work gloves.

## 4.8.3 Stopping The Cutterbar

- 4.8.3.1 Reduce engine RPM gradually to idle and stop the machine.
- 4.8.3.2 Never increase or reduce the oil amount too fast. This will damage the hydraulic system on a long-term basis.
- 4.8.3.3 When you are finished working, stop the engine, remove the ignition key and engage the handbrake, leaving the machine in a safe and secure position. Always wear safety glasses and work gloves. Beware of sharp cutting parts!
- 4.8.3.4 Always show consideration for other road users during transportation.

## 4.8.4 Stopping The Machine In An Emergency



**DANGER!** If the machine hits an object, becomes jammed, suddenly develops vibration or any other potentially harmful change happens to the machine.

**Stop the machine immediately!**

If you hit a solid object or foreign debris:

- 4.8.4.1 Return the tractor to idle engine speed immediately.
- 4.8.4.2 Disengage the PTO.
- 4.8.4.3 Wait for the knives to stop moving, then raise the reach arm and move the tractor off the object if safe to do so.
- 4.8.4.4 Relieve hydraulic pressure in the system. This can be done by pulling/pushing the selected tractor lever/button.
- 4.8.4.5 Press the emergency stop bottom on the reach arm controls to stop any potential movements whilst inspecting the machine. Stop the tractor.
- 4.8.4.6 With extreme caution, if a blocked foreign component has caused the machine to suddenly operate incorrectly or altogether ensure that all the correct levels of Personal Protection Equipment (PPE) is worn for safety purposes. Consider gaining extra personnel for assistance.
- 4.8.4.7 If the cause of sudden incorrect running of the machine is due to the machine colliding or hitting a foreign object, inspect the area and remove, or mark the location of the debris so it's not hit again.
- 4.8.4.8 Inspect the condition of the machine, reach arm and tractor and make any needed repairs before proceeding to use the machine again. Make sure the knives are not damaged or broken and the machine is intact and undamaged before resuming operation. If in doubt; do not restart.

## 4.9 General Cutting Hints

- 4.9.1.1 **DO NOT** angle the attachment in such a way as to throw cut material towards the tractor.
- 4.9.1.2 Avoid rushing into the work and maintain an even, steady speed to ensure a clean cut. Do not use excessive force when positioning the cutterbar into heavy branches or stumps. Damage to the machine may result. It is best to let the cutterbar 'eat away' slowly at heavy cutting jobs.

\*NOTE\* Working speed will be dependant on the particular machine and model that this accessory is being operated on; refer to the operation manual for that machine for details.

- 4.9.1.3 Always give the knives enough material to 'bite' into, particularly when a hedge has a lot of leaf and very flexible thin stems.

## 4.9.2 Hedge Cutting Hints

Consider how the job should be done before commencing work, as every hedge has a different height, width, thickness and density of growth. Hedges that have previously been cut by machine tend to have denser growth, and although they can be cut to any desired shape, it is advisable to trim to the same shape and height as before.

All Spearhead cutterbars are designed to be operated at an angle in relation to the direction of travel. This ensures an optimal cut, as the branches often bend slightly in the direction of travel, and the newly cut branches easily "slip past" the cutterbar.

The following information gives a few hints on how to tackle a hedge:

- 4.9.2.1 First trim the sides of the hedge down to the height of the previous year's trim in one cut, but do not cut into it as the old growth which will be very thick and strong and can cause premature wear to the knives. Begin from the bottom and work to the top of the hedge.
- 4.9.2.2 Stalling the knives in heavy growth is likely to cause damage to the machine.
- 4.9.2.3 Find the best speed (max. 3 mph (5 km/h)) and adjust the advancing speed of the tractor to ensure a satisfactory cut.
- 4.9.2.4 Next trim the top of the hedge to the previous trim but not into it.
- 4.9.2.5 If cut material falls on top of cutterbar causing tractor to become unstable, move the reach arm 'Forward' and 'Out' to relieve tipping of the tractor. Lower the cutterbar to the ground and stop the machine. Stop the tractor engine, remove and pocket the starting key. Remove cut material from the cutterbar.

### Factors and important items the user must pay particular attention to:

#### Driving And Steering Of The Tractor

- 4.9.2.6 Forward progress should be maintained at all times
- 4.9.2.7 Raise or lower the cutterbar to cut at the desired height
- 4.9.2.8 The result achieved will not be as good if the road is uneven. To ensure a better finish, steer more and drive more slowly
- 4.9.2.9 Drive carefully round bends and corners

#### The Driving Speed

The driving speed should be constantly adapted (maximum 3 mph (5 km/h)) to:

- 4.9.2.10 The course of the road
- 4.9.2.11 The denseness of the hedge
- 4.9.2.12 The thickness of the branches (max. 60 mm)

#### Oil Flow Speed

If oil flow is reduced; the blade speed is reduced.

- A lower blade speed can improve the finish of the cut. At higher operating speeds thin branches or leaves in particular may evade the knives, so a lower blade speed can make it easier for the branches to reach the knives.



**CAUTION!** The Operator Should Take Frequent Short Breaks

The operator must be attentive and alert during hedge cutting procedures.

The working position (on the driver's seat, bent over while having to look straight up and ahead) is ergonomically not comfortable, especially when working at height.

It is recommended therefore that the operator takes frequent short breaks and to do stretch exercises if necessary.



## 4.10 Transporting The Cutterbar



**IMPORTANT:** Thoroughly read the tractor and reach arm operators manuals to safely place the reach arm into the transport position with an aim in taking up the least amount of space.

In order to safely transport the reach arm mower and attachment when not in work with the tractor requires the operator to have a thorough knowledge and experience of the tractor they're using and safety precautions they should take.



**Figure 4.12**

After finishing work, the reach arm with the cutterbar needs to be pulled close to the vehicle where it takes up the least room.

Once the reach arm is placed in the transport position:

- 4.10.1.1 Close the outer arm in fully to the inner arm and slew the arm from work position into transport position.
- 4.10.1.2 The inner arm needs to be lifted until the transportation stop is met or close to the vehicle.
- 4.10.1.3 Angle the attachment in order to take up the least amount of space.
- 4.10.1.4 For Spearhead machines with slewing ability the reach arm should be slewed behind the tractor. Be mindful, if the reach arm is lifted to the transportation stop that it doesn't hit the cab of the vehicle or will hit the cab during transportation.
- 4.10.1.5 All hoses are sufficiently clear of the tyres to prevent contact during bounce and sway on braking, turning and undulating ground.
- 4.10.1.6 It is an essential requirement that when the machine is in the transport position all the isolator valves are closed.
- 4.10.1.7 Ensure the transport knife guard is fitted across the knives, as shown in Section 4.4.

Otherwise:

- 4.10.1.8 Ensure the tractor has been properly serviced and maintained. Do not operate the tractor with weak/faulty brakes or worn tyres.
- 4.10.1.9 Ensure the tractor has the capacity to handle the weight of the reach arm and attachment.

Failure to have at least 20% sufficient load over the front axle or to drive at inappropriate speeds on undulating terrain may result in a loss of directional control.

- 4.10.1.10 Ensure the tractor operating and reach arm controls are set for safe transport. Consult the tractor and reach arm manufacturers operators manual.



**WARNING!** Transport only at speeds where the reach arm and attachment and tractor can be maintained in control. Drive **conservatively**. Serious accidents and injuries can result from operating this equipment at high speeds.

- 4.10.1.11 Before using the tractor and reach arm and attachment ensure that the machine is only operated at safe speeds; on and off road (including work).



**DANGER!** Steering should be taken at slow speeds to maintain machine stability. Violently changing direction will greatly reduce machine stability resulting in loss of steering control, potentially turning over the machine and/or tractor causing serious injury, or even death

- 4.10.1.12 The operator should start at slow speeds and familiarise themselves of the operating and handling characteristics of the tractor in combination with the reach arm and attachment off road before proceeding to drive the machine onto the public highway. Gentle steering and braking should be adhered to maintain control and overall stability.
- 4.10.1.13 Tractor independent brakes should be locked together and the differential lock should be disengaged.
- 4.10.1.14 Before transporting the tractor and reach arm and attachment, determine the legal maximum transport speeds for the equipment conforming to local jurisdictions and comfortable transport speeds for the operator. Only increase speeds safely when conditions allow or the operator is comfortable to do so.



**Figure 4.13 – Follow Safe Driving Practices**

Transport the machine only at safe speeds which allow you to properly control the machine and at a **maximum** speed of 20 mph (32 kph). Drive for the conditions and reduce speed if required. Increasing speeds, operating down a hill or on wet or rain slick roads; increases stopping distances.

- 4.10.1.15 Make certain that the local jurisdiction legal safety requirement items are fitted. For example a “Slow Moving Vehicle” (SMV) sign is installed and tractor flashing warning lights. Check the local jurisdiction to determine whether the flashing warning beacons are required to be switched on when the machine is working.

Make sure all these safety awareness items are clearly visible and legible and follow all local traffic regulations. If the item is in anyway not working correctly or is faded; replace.



**DANGER!** The reach arm may be taller and wider than the tractor. Be careful when operating or transporting the reach arm and attachment to prevent the machine from running into or striking sign posts, barriers, walls, cars or any other solid objects. Such an impact could cause the tractor and reach arm to violently change direction or balance resulting in loss of steering control, serious injury, or even death.

- 4.10.1.16 Be aware of other road users and bystanders and make the machine aware to other users. Check your side view mirrors frequently and remember vehicles will approach quickly because of the tractor's slower speed. Gain eye contact with other people to gauge they've seen the tractors presence.
- 4.10.1.17 When operating on public roads, have consideration for other road users. Pull to the side of the road occasionally to allow all following traffic to pass. Do not exceed the legal speed limit set in your local jurisdiction for agricultural tractors. Always stay alert when transporting the tractor and reach arm on public roads. Use caution and reduce speed if other vehicles or pedestrians are in the area.
- 4.10.1.18 Make sure all tractor and reach arm lighting are functioning correctly. Older tractors may not feature as many/bright lights as modern tractors. Consider upgrading the lights by consulting your authorized tractor dealer to ensure that the tractor and machine presence is seen.
- 4.10.1.19 It is of utmost importance that safety decals are kept clean and replaced if they are no longer legible, damaged or lost completely. Safety decals can be purchased readily from a local Spearhead dealer.
- 4.10.1.20 After work and all debris is swept away from footpaths and highways ensure that the work site is tidied. The operator is liable for any resulting damage or injury.

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## 5 Maintenance



**WARNING!** Before proceeding to carry out any maintenance on the machine, ensure that you have thoroughly read and understand Section 2.3 “Safe Maintenance” with regards to the correct and safe maintenance procedures of looking after the machine. This section gives safe guidance to ensure the wellbeing on the maintenance personnel as well as the machine itself.

### 5.1 Periodic Maintenance

Perform service, repairs, lubrication and maintenance procedures outlined throughout Section 5 to ensure the longevity and reliability of the cutterbar.

In general:

- 5.1.1.1 Inspect for loose or missing fasteners, worn or broken parts, leaky or loose fittings, worn bushes and any other moving parts which are worn or missing.
- 5.1.1.2 Replace any worn or broken parts with genuine Spearhead parts under the guidance of the specific section stated in Section 5.
- 5.1.1.3 Lubricate the cutterbar specified by the lubrication schedule.
- 5.1.1.4 **Never** lubricate, adjust or remove material while it is running or in motion.
- 5.1.1.5 Torque all bolts and nuts to the settings specified.

### 5.2 Maintenance Schedule

| Period                          | Maintenance Tasks                    | Cleaning | Inspection | Lubrication | Replacemen |
|---------------------------------|--------------------------------------|----------|------------|-------------|------------|
| <b>Initial first 10 minutes</b> | Tightening torques for all fasteners |          | X          |             |            |
| <b>As required</b>              | Cutterbar                            | X        |            |             |            |
|                                 | Knives                               |          |            |             | X          |
|                                 | Mount Bar                            |          |            |             | X          |
|                                 | Guards                               |          |            |             | X          |
|                                 | Safety Fingers                       |          |            |             | X          |
|                                 | Wear Plates                          |          |            |             | X          |
|                                 | Knife Head                           |          |            |             | X          |
| <b>Before each use</b>          | Cutterbar                            |          | X          |             |            |
| <b>Every 50 hours</b>           | Knife Drive                          |          |            | X           |            |
|                                 | Head Bearing                         |          |            | X           |            |
|                                 | Tightening torques for all fasteners |          | X          |             |            |

**Table 5.1**

### 5.3 Required Tools

You will need the following tools for maintenance of the cutterbar trimmer:

1. Torque Wrench
  - 1.1. Tightening torque 115 Nm for bolts M12 x 40 (Knife drive)
  - 1.2. Tightening torque 115 Nm for bolts M12 x 30 (Motor Mount and Knife Drive)
  - 1.3. Tightening torque 48 Nm for nuts M10 (guard)
  - 1.4. Tightening torque 15 Nm for bolts M6 x 22, M6 x 18 (knife connection) and nuts M6 (knives)
  - 1.5. Tightening torque 81 Nm for bolts M10 x 35 (head bearing)
  - 1.6. Tightening torque > 72 Nm for bolt M10 x 45 (knife head lug)
2. Wrench set
3. Socket set can be motorised or air-powered
4. Open-end wrench set

## 5.4 Knives & Drive System



**WARNING!** Checking or replacing the knives should only be carried out with the tractors engine switched off, starting key removed and the PTO shaft disconnected. Do not restart the machine until all personnel and bystanders have escaped the 90m exclusion area sufficiently and the working area has been reassessed



**WARNING!** Avoid personal injury. Never work under the cutterbar without fixed supports to ensure that the cutterbar does not fall. This applies if the cutterbar is attached to the reach arm or is detached.

### 5.4.1 Inspection

Before proceeding to carry out any maintenance on the machine, ensure that you have thoroughly read and understand Section 5 “Maintenance” and Section 2.7 “2.7 Safety Information For Assembly, Maintenance And Repair Work”. This section gives safe guidance to ensure the wellbeing on the maintenance personnel as well as the machine itself.

The knives should be replaced if they have:

- Distortion
- Cracks

For safety and performance only use genuine Spearhead knives. When replacing knives it is important that new knife bolts are fitted.

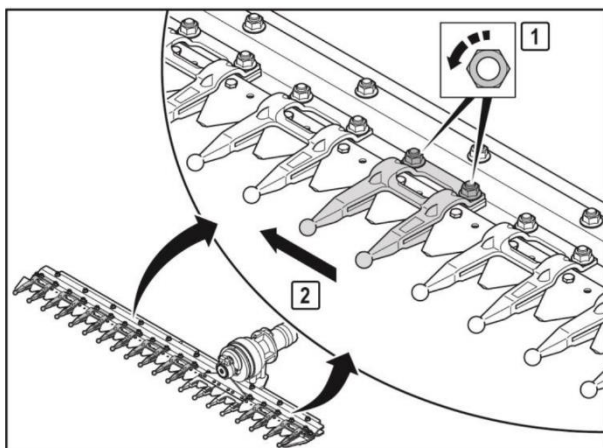
Knife wear blocks should be inspected for wear and replaced if excessively worn.

Inspect the knives before each use to determine that they are properly installed, secure and in good condition. A knife that is bent, excessively nicked, worn or have any other damage should be replaced. Failure to replace such an abnormally damaged knife may lead to catastrophic failure of the knife and ejection of the broken part which may cause bodily injury or death.

### 5.4.2 Replacing A Single Knife

In case of breakage, single knives of the complete knife rack can be replaced.

#### Removal

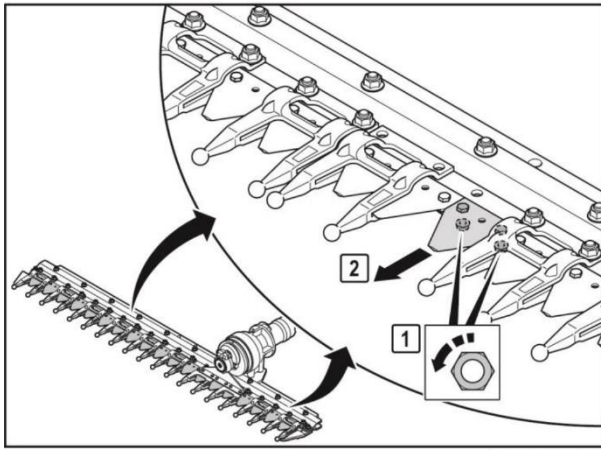


OPMAN01013

**Figure 5.1**

5.4.2.1 Loosen and remove the double knife guard fixing fasteners covering the damaged knife and remove the bolts.

5.4.2.2 Slide the double knife guard to the side in order to access the knife bolts



OPMAN01014

Figure 5.2

5.4.2.3 Loosen the nuts on the damaged knife and tap the serrated stud bolts to remove them.

5.4.2.4 Remove the knife from the knife mount bar.

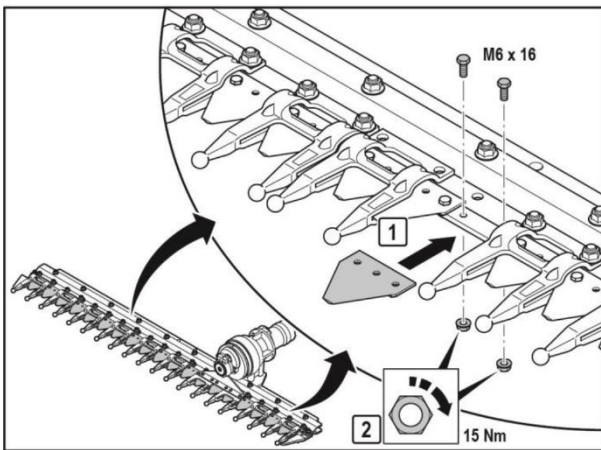
### Replacement



OPMAN01015

Figure 5.3

As the cutterbar's fingers are supplied with a double cutting edge (on the topside and the underside), the knife teeth can be turned in both directions.



OPMAN01016

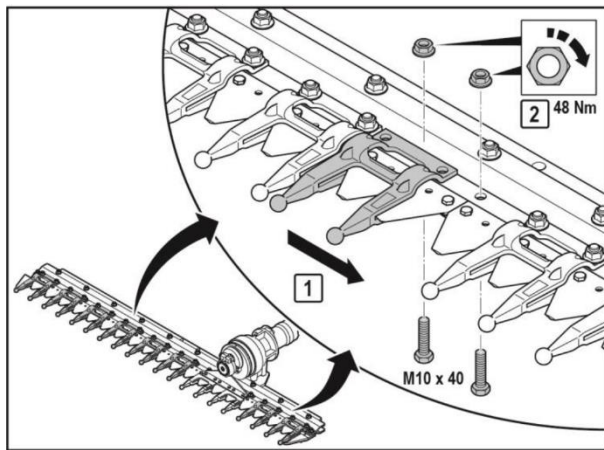
Figure 5.4

5.4.2.5 Position the new knife on the mount bar.

5.4.2.6 Insert the serrated stud bolts from above.

Always use new serrated stud bolts!

5.4.2.7 Tighten the nuts to the specified tightening torque. – 15 Nm (11 ftlb)



OPMAN01017

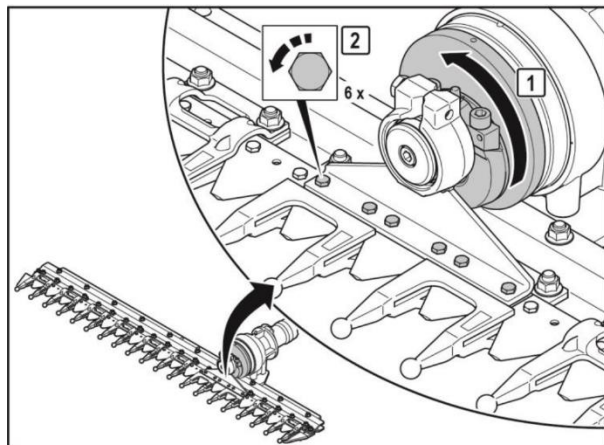
Figure 5.5

- 5.4.2.8 Slide the double knife guard back over the the new knife.
- 5.4.2.9 Insert the bolts.
- 5.4.2.10 Tighten the nuts to the specified tightening torque. – 48 Nm (35 ftlb)

### 5.4.3 Replacing A Complete Knife Set

If the multiple knives are excessively worn, the entire knife set must be replaced.

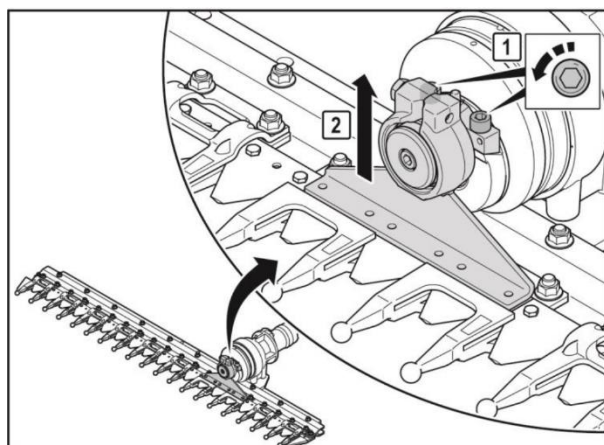
#### Removing The Knife Set From The Cutterbar Assembly



OPMAN01018

Figure 5.6

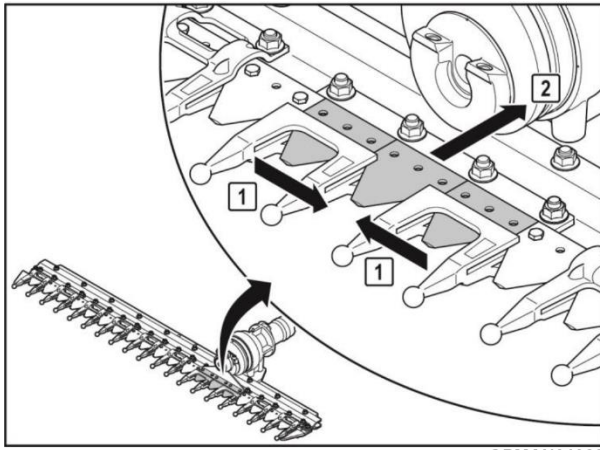
- 5.4.3.1 Align the motor so that the bolts on the motor drive bearing are pointing upwards.
- 5.4.3.2 Unscrew the bolts fixing the knife head to the knife mount bar.



OPMAN01019

Figure 5.7

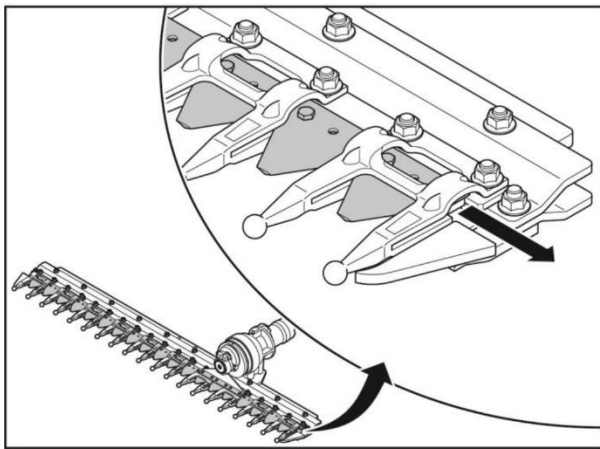
- 5.4.3.3 Unscrew the bolts on the head bearing.
- 5.4.3.4 Remove the knife head.



OPMAN01020

**Figure 5.8**

5.4.3.5 Remove the three loose knives toward the rear between the two guards.

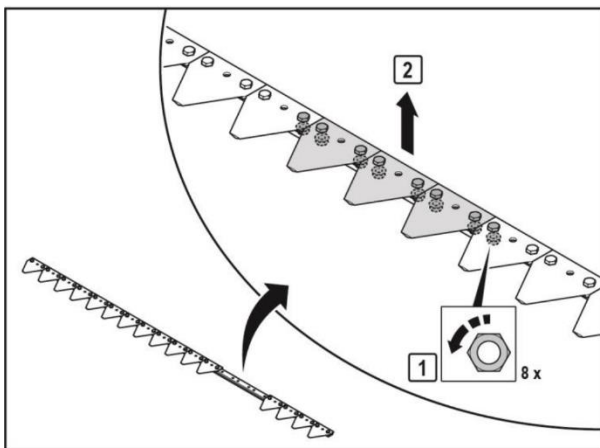


OPMAN01021

**Figure 5.9**

5.4.3.6 Pull the knife mount bar carefully through to remove it from the cutterbar assembly.

#### 5.4.4 Replacing Multiple Knives On The Mount Bar



OPMAN01022

**Figure 5.10**

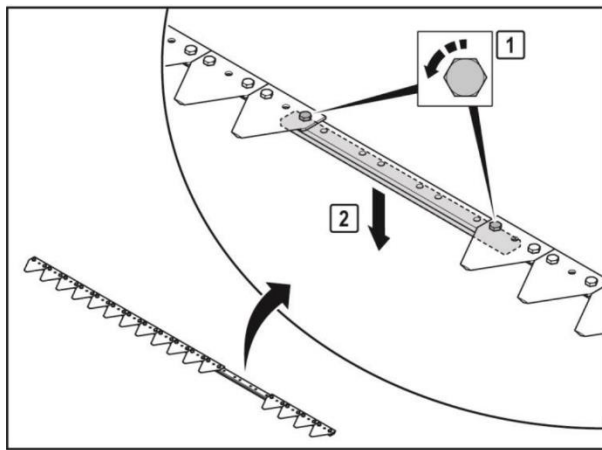
5.4.4.1 Loosen and remove the nuts on the three knives which need to be replaced.

5.4.4.2 Loosen the nuts on both sides of the next outer knives of these.

5.4.4.3 Tap the serrated stud bolts to remove them.

5.4.4.4 Remove the three knives.



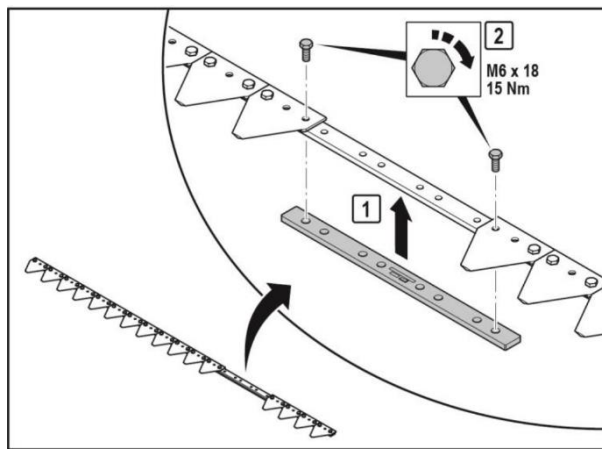


OPMAN01023

**Figure 5.11**

5.4.4.5 Loosen the two outer bolts on the knife mount bar.

5.4.4.6 Remove the knife mount bar.



OPMAN01024

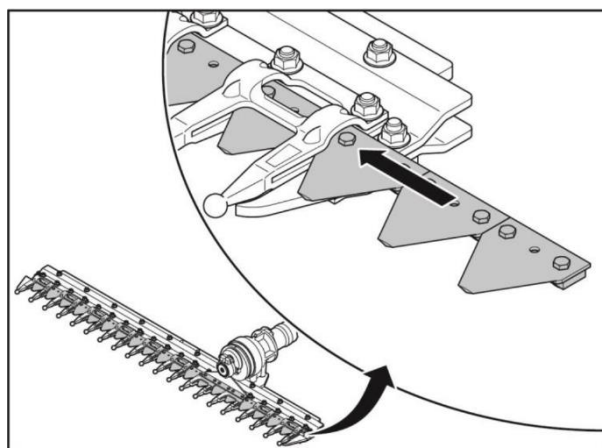
**Figure 5.12**

5.4.4.7 Mount the new knife mount bar on the knife assembly.

5.4.4.8 Make sure that the protrusions of the press-in nuts point upward and are seated properly during assembly.

5.4.4.9 Tighten the two bolts to the specified tightening torque. – 15 Nm (11 ftlb)

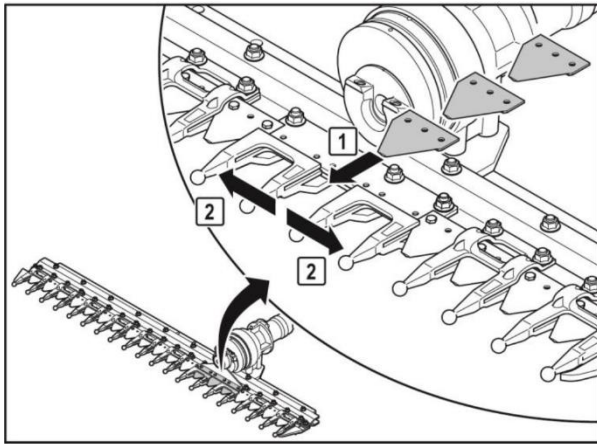
**Replacing The Knife Set Back Into The Cutterbar**



OPMAN01025

**Figure 5.13**

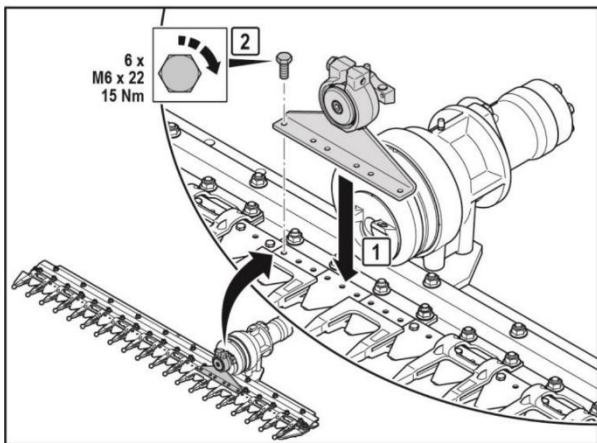
5.4.4.10 Slide the knife assembly carefully into the cutterbar assembly.



OPMAN01026

**Figure 5.14**

5.4.4.11 Insert the three loose knives from the rear between the two knife motor guards in front of the knife head and push them into the mounting position.

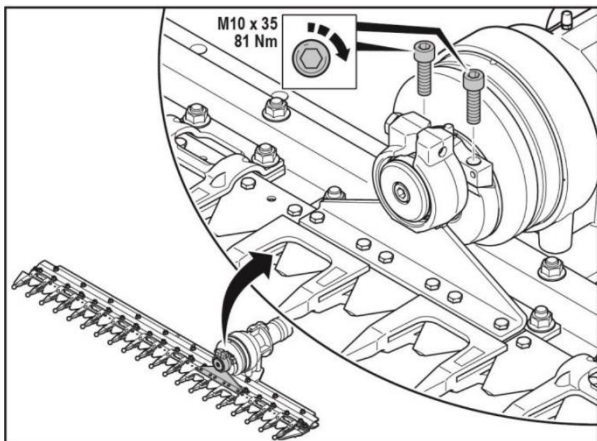


OPMAN01027

**Figure 5.15**

5.4.4.12 Place the knife head on the knives.

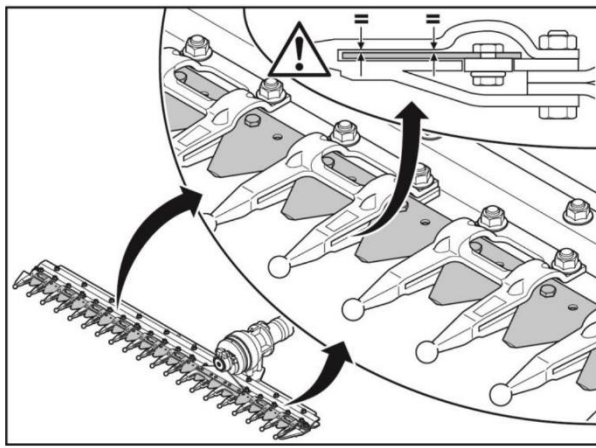
5.4.4.13 Tighten the bolts to the specified tightening torque. – 15 Nm (11 ftlb)



OPMAN01028

**Figure 5.16**

5.4.4.14 Tighten the bolts on the head bearing to the specified tightening torque. – 81 Nm (60 ftlb)



OPMAN01029

Figure 5.17

5.4.4.15 Check the cutting gap for parallelism.

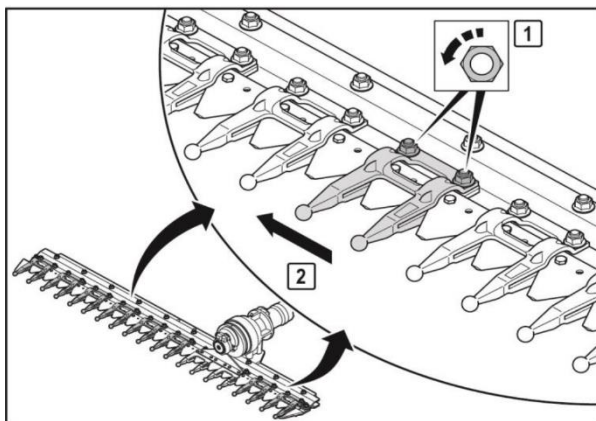
5.4.4.16 Observe the section while it runs very slowly.

5.4.4.17 If the knife scrapes or does not run straight in the cutting gap, the cause must be determined and eliminated.

## 5.4.5 Replacing A Double Knife Guard

A guard must be replaced if it is bent or damaged, or if the cutting gap has reached the wear mark of 5.4 mm.

### Removal

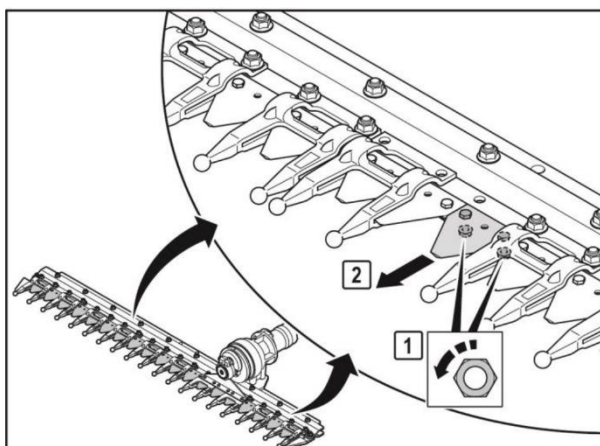


OPMAN01030

Figure 5.18

5.4.5.1 Unscrew the nuts on the damaged double knife guard and remove the bolts.

5.4.5.2 Push the double knife guard to the side in order to access the knife bolts.

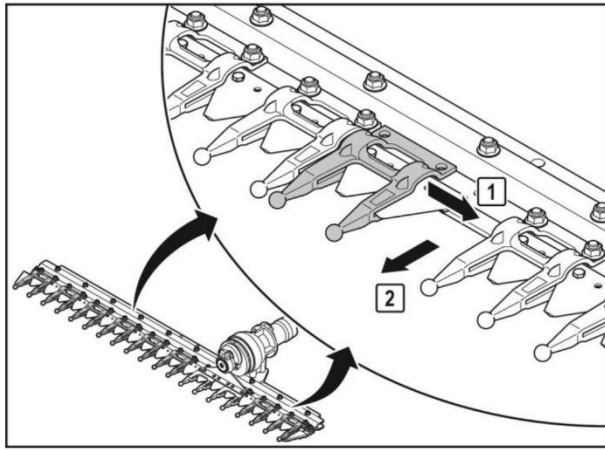


OPMAN01031

Figure 5.19

5.4.5.3 Loosen the nuts on the corresponding knife and tap the serrated stud bolts to remove them.

5.4.5.4 Remove the knife.

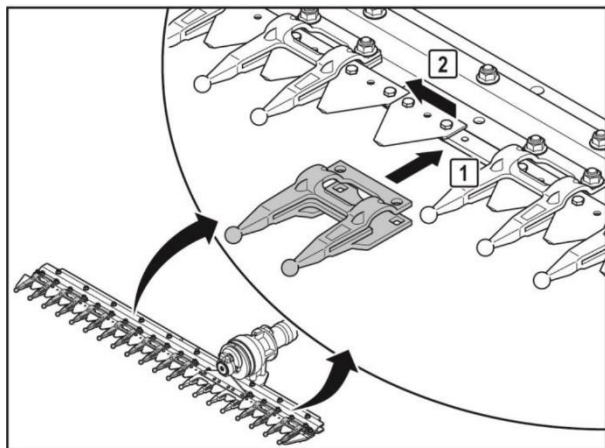


OPMAN01032

**Figure 5.20**

- 5.4.5.5 Push the double knife guard through the resulting gap left by the removed knife.

**Replacement**

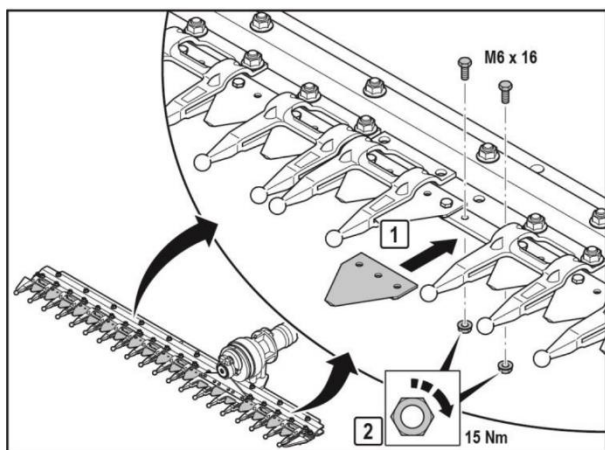


OPMAN01033

**Figure 5.21**

- 5.4.5.6 Push the new double knife guard through the gap left by the removed knife.

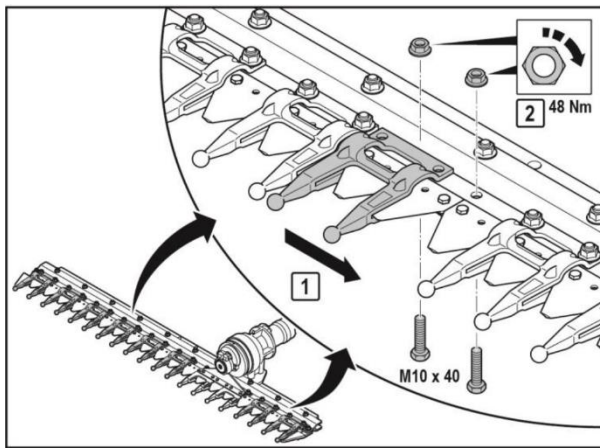
- 5.4.5.7 Push the double guard aside to allow the knife to be replaced in position.



OPMAN01034

**Figure 5.22**

- 5.4.5.8 Position the knife.
- 5.4.5.9 Insert the serrated stud bolts from above.  
Always use new serrated stud bolts!
- 5.4.5.10 Tighten the nuts to the specified tightening torque. – 15 Nm (11 ftlb)



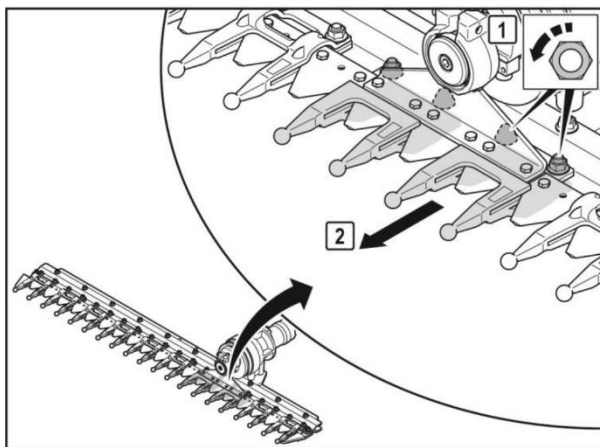
OPMAN01035

Figure 5.23

- 5.4.5.11 Slide the double knife guard back over the knife.
- 5.4.5.12 Insert the bolts.
- 5.4.5.13 Tighten the nuts to the specified tightening torque. – 48 Nm (35 ftlb)

## 5.4.6 Replacing A Knife Arm Guard

### Removal Of A Knife Arm Guard

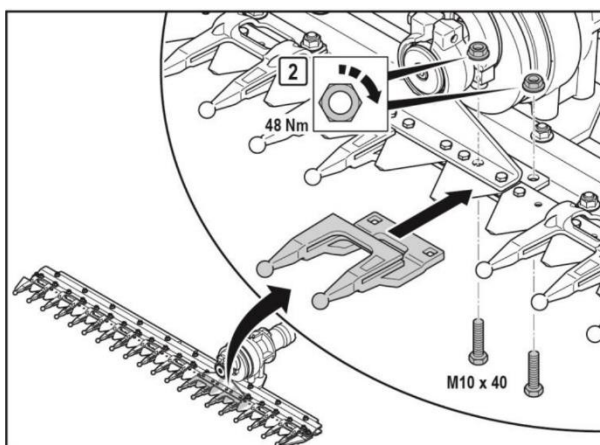


OPMAN01036

Figure 5.24

- 5.4.6.1 Unscrew the nuts on the knife arm guard and remove the bolts.
- 5.4.6.2 Remove the knife arm guards from the knife arm assembly.

### Replacement Of The Knife Arm Guards



OPMAN01037

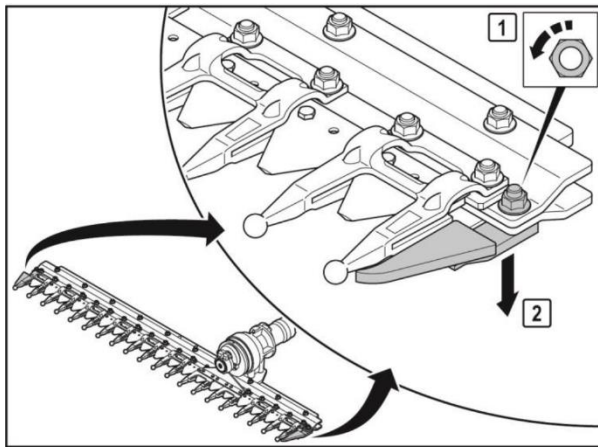
Figure 5.25

- 5.4.6.3 Position the knife arm guard below the profile bar.
- 5.4.6.4 Insert the bolts.
- 5.4.6.5 Tighten the nuts to the specified tightening torque. – 48 Nm (35 ftlb)

## 5.4.7 Replacing The Safety End Finger

If the position of the safety end finger on the guard is not correct, it can be aligned to correct this. Damaged safety end fingers must be replaced immediately.

### Removal



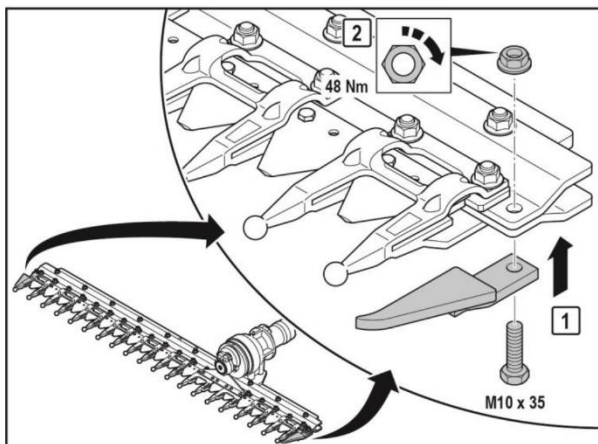
OPMAN01038

Figure 5.26

5.4.7.1 Unscrew the nuts holding the safety end finger and remove the bolts.

5.4.7.2 Remove the safety end finger from the mount bar.

### Replacement



OPMAN01039

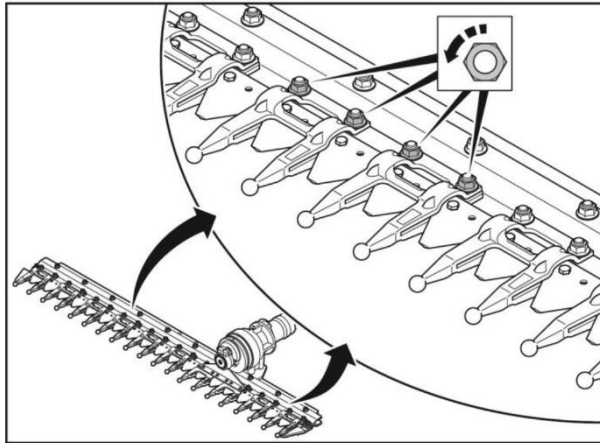
Figure 5.27

5.4.7.3 Position the safety finger beneath the mount bar.

5.4.7.4 Insert the bolt and tighten the nut to the specified tightening torque. – 48 Nm (35 ftlb)

## 5.4.8 Replacing The Wear Plate

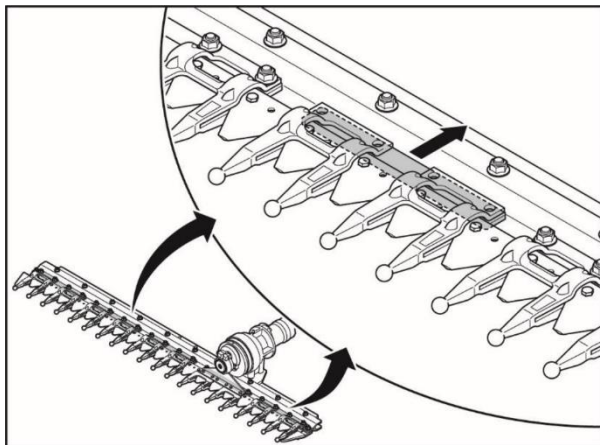
If the wear plates are worn, they must be replaced.



OPMAN01040

**Figure 5.28**

- 5.4.8.1 Loosen and remove the fasteners holding the wear plate.

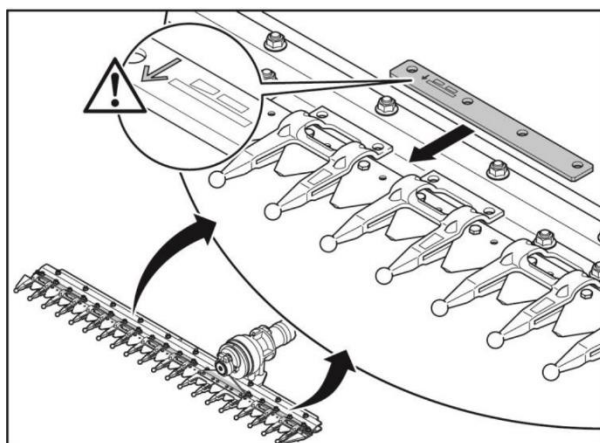


OPMAN01041

**Figure 5.29**

- 5.4.8.2 Push the worn wear plate out to the rear over the mount bar.

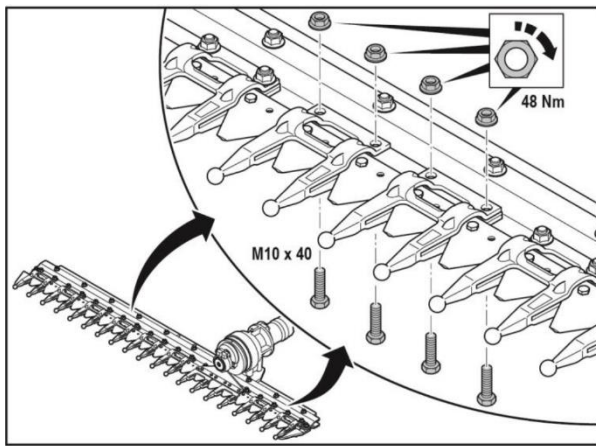
### Replacement



OPMAN01042

**Figure 5.30**

- 5.4.8.3 Push the new wear plate from the rear between the mount bar and double knife guard. The arrow on the wear plate must point in the direction of travel.



OPMAN01043

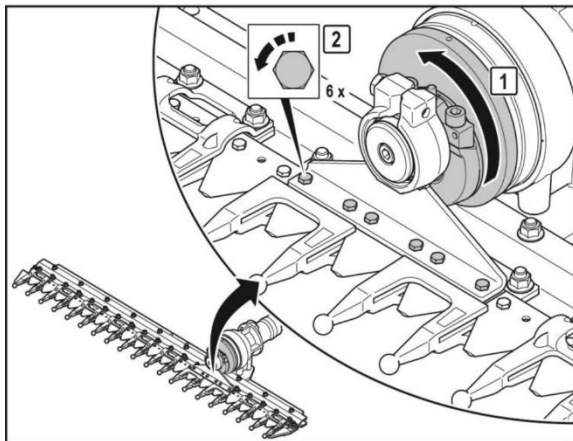
Figure 5.31

- 5.4.8.4 Position the two knife guards correctly on the wear plate.
- 5.4.8.5 Insert the bolts.
- 5.4.8.6 Tighten the nuts to the specified tightening torque. – 48 Nm (35 ftlb)

## 5.4.9 Replacing The Knife Head

If the knife head is bent, damaged or deformed, it must be replaced immediately.

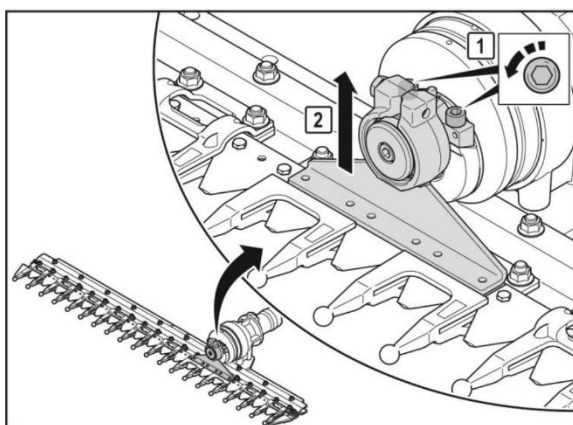
### Removal



OPMAN01044

Figure 5.32

- 5.4.9.1 Align the motor so that the bolts on the motor drive bearing are pointing upwards.
- 5.4.9.2 Unscrew the bolts on the knife head.

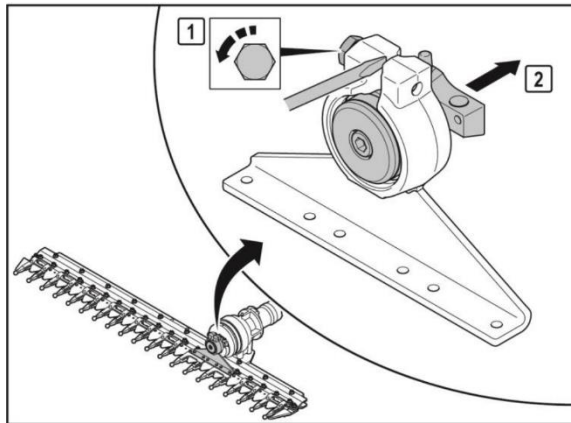


OPMAN01045

Figure 5.33

- 5.4.9.3 Unscrew the bolts on the head bearing.
- 5.4.9.4 Remove the knife head from the knives. Watch out for loose knives.

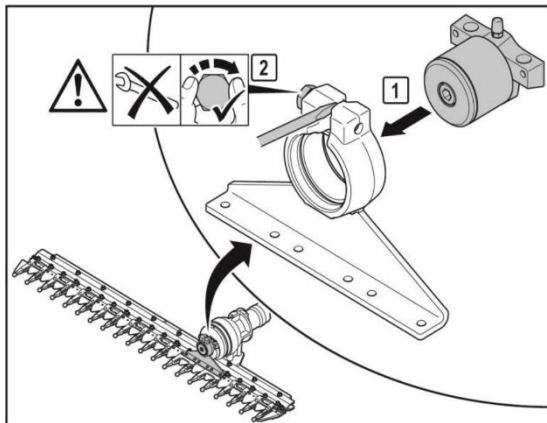


**Removing The Head Bearing**

OPMAN01046

**Figure 5.34**

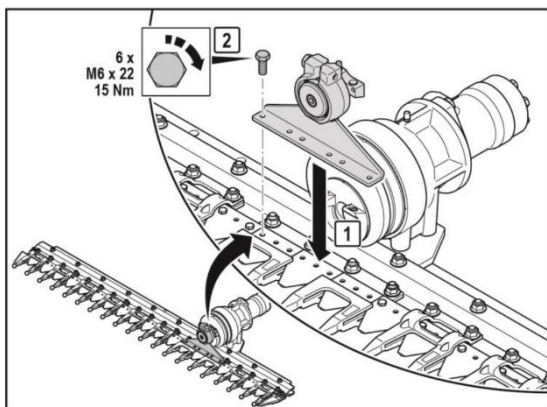
- 5.4.9.5 Loosen the bolt on the knife head.
- 5.4.9.6 Remove the head bearing from the knife head. You can spread the knife head somewhat by inserting a small screwdriver into the slot of the knife head.

**Replacing The Head Bearing**

OPMAN01047

**Figure 5.35**

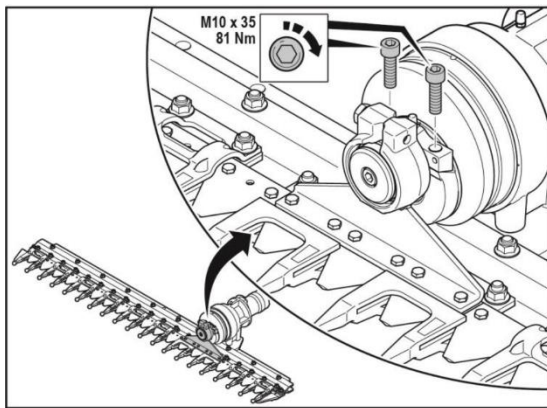
- 5.4.9.7 Insert the head bearing in the new knife head and align it roughly. You can spread the knife head somewhat by inserting a small screwdriver into the slot of the knife head.
- 5.4.9.8 Tighten the bolt hand-tight.

**Mounting The Knife Head**

OPMAN01048

**Figure 5.36**

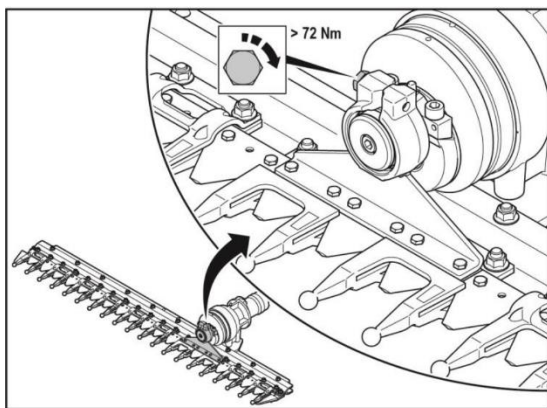
- 5.4.9.9 Place the knife head on the knives.
- 5.4.9.10 Tighten the bolts to the specified tightening torque. – 15 Nm (11 ftlb)



OPMAN01049

**Figure 5.37**

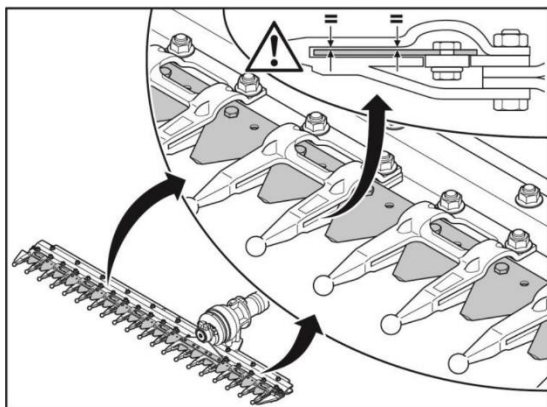
- 5.4.9.11 Tighten the bolts on the head bearing to the specified tightening torque. – 81 Nm (60 ftlb)



OPMAN01050

**Figure 5.38**

- 5.4.9.12 Tighten the bolts on the knife head to the specified tightening torque. – 72 Nm (53 ftlb)



OPMAN01051

**Figure 5.39**

- 5.4.9.13 Check the cutting gap for parallelism.
- 5.4.9.14 Observe the section while it runs very slowly.
- 5.4.9.15 If the knife scrapes or does not run straight in the cutting gap, the cause must be determined and eliminated.

## 5.5 Hydraulic Components

Before proceeding to carry out any maintenance requirements on the hydraulic system, ensure that you have thoroughly read and understood Section 2.7 on how to safely go about carrying out maintenance requirements to the cutterbar, including how to approach the hydraulic system and its components. Section 2.6 should also be read to understand how to safely operate and use the machine in general.



**CAUTION!** Relieve hydraulic pressure before disconnecting the hydraulic hoses or working on the system. This can be done by pulling/pushing the selected tractor lever/button. Only once this has been completed and then suitable safety glasses and impenetrable gloves have been put on can the hydraulic hoses be removed from the tractor.



**CAUTION!** When working with/checking the hydraulic system on the cutterbar or reach arm always wear safety glasses and impenetrable gloves. This also applies when working with motor and motor oil. Use paper or cardboard to search for leaks and not hands or any other body parts.



**CAUTION!** Keep hands and body away from pin holes and nozzles ejecting hydraulic fluid. Ingested or penetrated hydraulic fluid in the body can become gangrenous. Removal must be carried out professionally by a suitable Doctor.



**CAUTION!** Ensure all hydraulic hoses, lines and connections in good condition and tight before applying pressure.



**CAUTION!** Do not change any factory-set hydraulic settings to avoid component or equipment failures.



**CAUTION!** Ensure maintenance personnel wear suitable PPE clothing when maintaining the machine to ensure risk of impact or skin injuries. Suitable footwear and gloves are an example. For example frequent or prolonged contact with hydraulic oil may cause dermatitis and other skin disorders including (more rarely) skin cancer when not wear impenetrable gloves. Worn parts may have sharp edges.



**CAUTION!** Follow the guidance of the lubricant manufacturer with regards to handling oils, solvents, cleansers and other chemical agents.

### 5.5.1 Hoses



**WARNING!** Relieve hydraulic pressure before disconnecting lines or working on the machine. This can be done by pulling/pushing the selected tractor lever/button.

It is false economy to try and make a damaged hose last a bit longer, because a failure can spill a lot of oil on the road endangering traffic, the environment and costing money. To reduce the risk of this happening and ensure a long life from the hoses, follow the guidelines below.

On a weekly basis:

- 5.5.1.1 Check that all hoses and their connections are in good condition and that there are no leaks or damage. Replace any hose that is leaking or damaged.
- 5.5.1.2 Check to see that hoses are not and have not been chafing against sharp edges. If evidence of chafing is found then inspect for damage and if found replace. Re-route any hose that has been chafing using the guidance given in Section 4.6.3.
- 5.5.1.3 Check to ensure that hoses are fitted without kinks or sharp bends using the guidance given in Section 4.6.
- 5.5.1.4 If in doubt about the condition of any hose replace. When replacing hoses, be sure to tighten to the correct torque setting, see Section 5.7.

## 5.6 Lubrication & Greasing



**CAUTION!** When working with/checking the hydraulic system on the cutterbar always wear safety glasses and impenetrable gloves. This also applies when working with motors and hydraulic oil. Use paper or cardboard to search for leaks and not hands or any other body parts.



**CAUTION!** Keep hands and body away from pin holes and nozzles ejecting hydraulic fluid. Ingested or penetrated hydraulic fluid in the body can become gangrenous. Removal must be carried out professionally by a suitable Doctor.

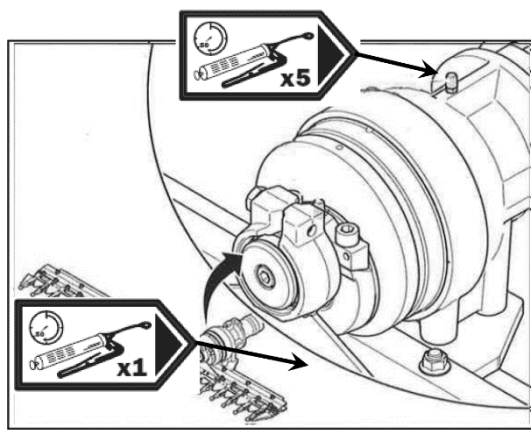


### Equipment Required

- Manually operated grease gun supplying NLGI #2 Molybdenum Disulphide Grease to M6/M8 grease nipples

The mechanical components of the machine in use must be lubricated to avoid wear and heat build-up. Lubrication may be through the use of grease or oil. Oil allows higher relative speeds of items such as gearboxes, whereas grease is generally used to lubricate items such as bearings or bushes. In both cases it is important to ensure lubrication is given to these various items to ensure their longevity and reliability in use.

### 5.6.1 Knife Head Bearing & Motor Drive Bearings



**Figure 5.40**

The hedge cutter has two lubrication points, one on the knife head and one on the motor drive bearing.

Lubricate the grease nipples in accordance with the information on the lubrication sticker.

Before lubricating, clean the grease nipples of any dirt or residue.

After each lubrication, remove any emerging grease.

The knife head is lubricated by squeezing the grease gun at least once.

The motor drive bearing is lubricated by squeezing the grease gun at least 5 times.

### 5.6.2 Greasing Schedule



### Equipment Required

- Manually operated grease gun supplying NLGI #2 Molybdenum Disulphide Grease to M6/M8 grease nipples

With reference to the position of grease points in Figure 5.40, the following greasing schedule should be adhered to, to ensure reliability and longevity in components.

**IMPORTANT:** With extended and harder working conditions, these greasing times may need to be shortened to compensate for the machine more intensive work requirements.

**NOTE:** All values throughout this section are given on the assumption that a **manually operated grease gun** is used to carry out the greasing procedures giving a **predicted quantity of 0.8-1.0g of grease per pump**.

| Grease Point | Qty (pumps) | Frequency      |
|--------------|-------------|----------------|
| Motor        | 5           | Every 50 hours |
| Knife Head   | 1           | Every 50 hours |

**Table 5.2**  
**Greasing Schedule For Various Components**

## 5.7 Torque Settings

### 5.7.1 Nuts & Bolts

#### Non-specific Fastener Requirements

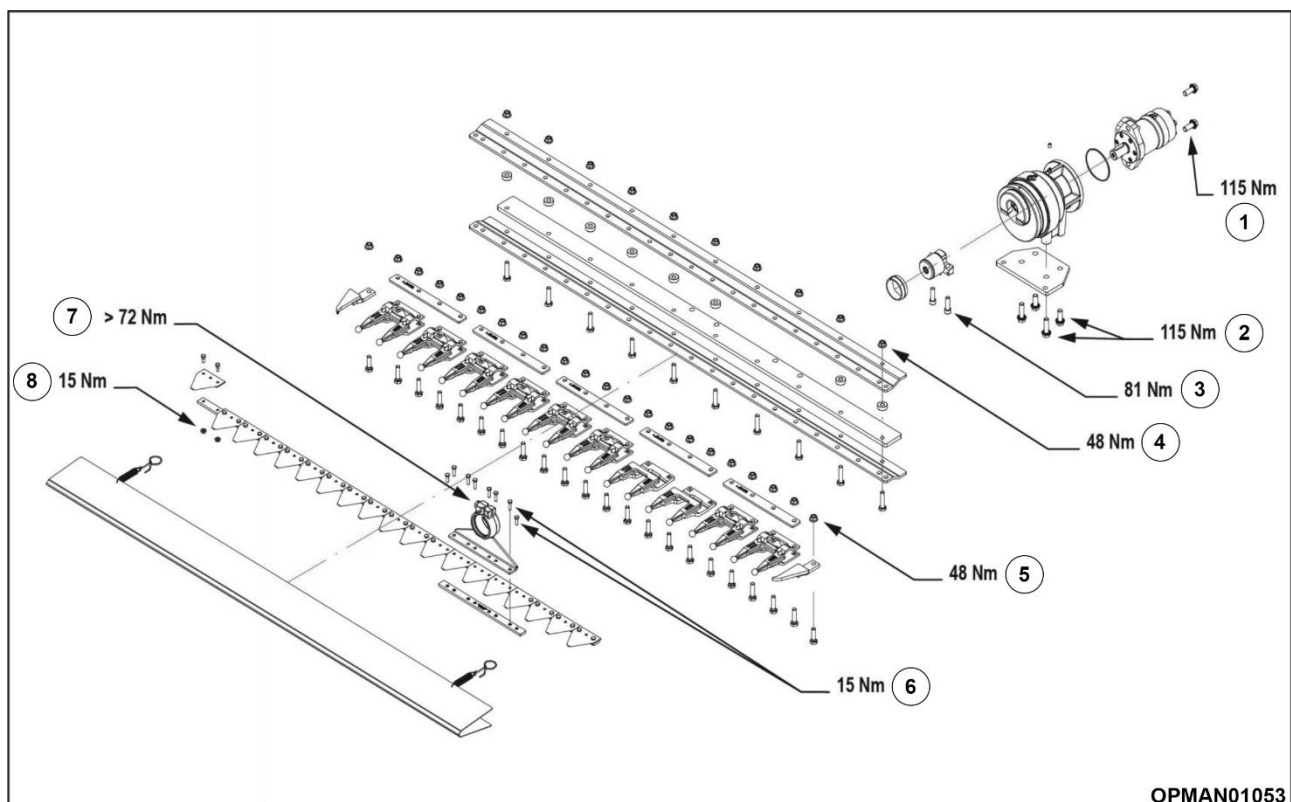
The below tables give reference to the **maximum** recommended tightening torques for standard, zinc plated finished bolts on Spearhead machines. **These settings can be applied to hex, socket countersunk and socket button screws.**

| Size | Grade |       |      |       |      |       |
|------|-------|-------|------|-------|------|-------|
|      | 8.8   |       | 10.9 |       | 12.9 |       |
|      | Nm    | Ft-lb | Nm   | Ft-lb | Nm   | Ft-lb |
| M5   | 5     | 3     | 7    | 5     | 8    | 6     |
| M6   | 14    | 10    | 12   | 9     | 14   | 10    |
| M8   | 34    | 25    | 29   | 21    | 34   | 25    |
| M10  | 68    | 50    | 57   | 42    | 68   | 50    |
| M12  | 119   | 88    | 99   | 73    | 119  | 88    |
| M14  | 189   | 139   | 158  | 116   | 189  | 139   |
| M16  | 295   | 218   | 246  | 181   | 295  | 218   |
| M18  | 406   | 299   | 338  | 249   | 406  | 299   |
| M20  | 576   | 424   | 480  | 354   | 576  | 424   |
| M22  | 783   | 577   | 652  | 481   | 783  | 577   |
| M24  | 995   | 734   | 829  | 612   | 995  | 734   |
| M30  | 1977  | 1458  | 1647 | 1215  | 1977 | 1458  |

**Table 5.3 – Standard Fastener Torque Settings**

#### Specific Fastener Requirements

The Spearhead SP Cutterbar contains fasteners that require a specific torque setting. The below diagram states the location of all these fasteners and their required torque setting.



**Figure 5.41**

| Location |                                   | Torque Setting |       |
|----------|-----------------------------------|----------------|-------|
|          |                                   | Nm             | Ft-lb |
| 1        | Motor Mount                       | 115            | 85    |
| 2        | Knife Drive Mounting              | 115            | 85    |
| 3        | Knife Head Bearing                | 81             | 60    |
| 4        | Reinforcement Strip & Profile Bar | 48             | 35    |
| 5        | Knife Guard & Safety End Finger   | 48             | 35    |
| 6        | Knife Head Mounting               | 15             | 11    |
| 7        | Knife Head To Knife Head Bearing  | >72            | >53   |
| 8        | Knife                             | 15             | 11    |

**Table 5.4 – Standard Fastener Torque Settings**

## 5.7.2 Hydraulic Fittings

Throughout all HD cutterbars, BSP adaptors and hoses are used. See the relevant headings for adaptors and hoses.

### Port Adaptors With Bonded Seals

The below tables give reference to the **maximum** recommended tightening torques for standard, BSP port adaptors.

| Size | Thread | Torque Setting |       | Spanner Size |
|------|--------|----------------|-------|--------------|
|      |        | Nm             | Ft-lb |              |
| 1/4" | BSP    | 34             | 25    | 19mm         |
| 3/8" | BSP    | 47             | 35    | 22mm         |
| 1/2" | BSP    | 102            | 75    | 27mm         |
| 3/4" | BSP    | 149            | 110   | 32mm         |
| 1"   | BSP    | 203            | 150   | 41mm         |

**Table 5.5 – Adaptor Torque Settings**

### Hydraulic Hoses


The below tables give reference to the **maximum** recommended tightening torques for standard, hydraulic hoses.

| Size | Thread | Torque Setting |       | Spanner Size |
|------|--------|----------------|-------|--------------|
|      |        | Nm             | Ft-lb |              |
| 1/4" | BSP    | 24             | 18    | 19mm         |
| 3/8" | BSP    | 33             | 24    | 22mm         |
| 1/2" | BSP    | 44             | 35    | 27mm         |
| 3/4" | BSP    | 84             | 62    | 32mm         |
| 1"   | BSP    | 115            | 85    | 41mm         |

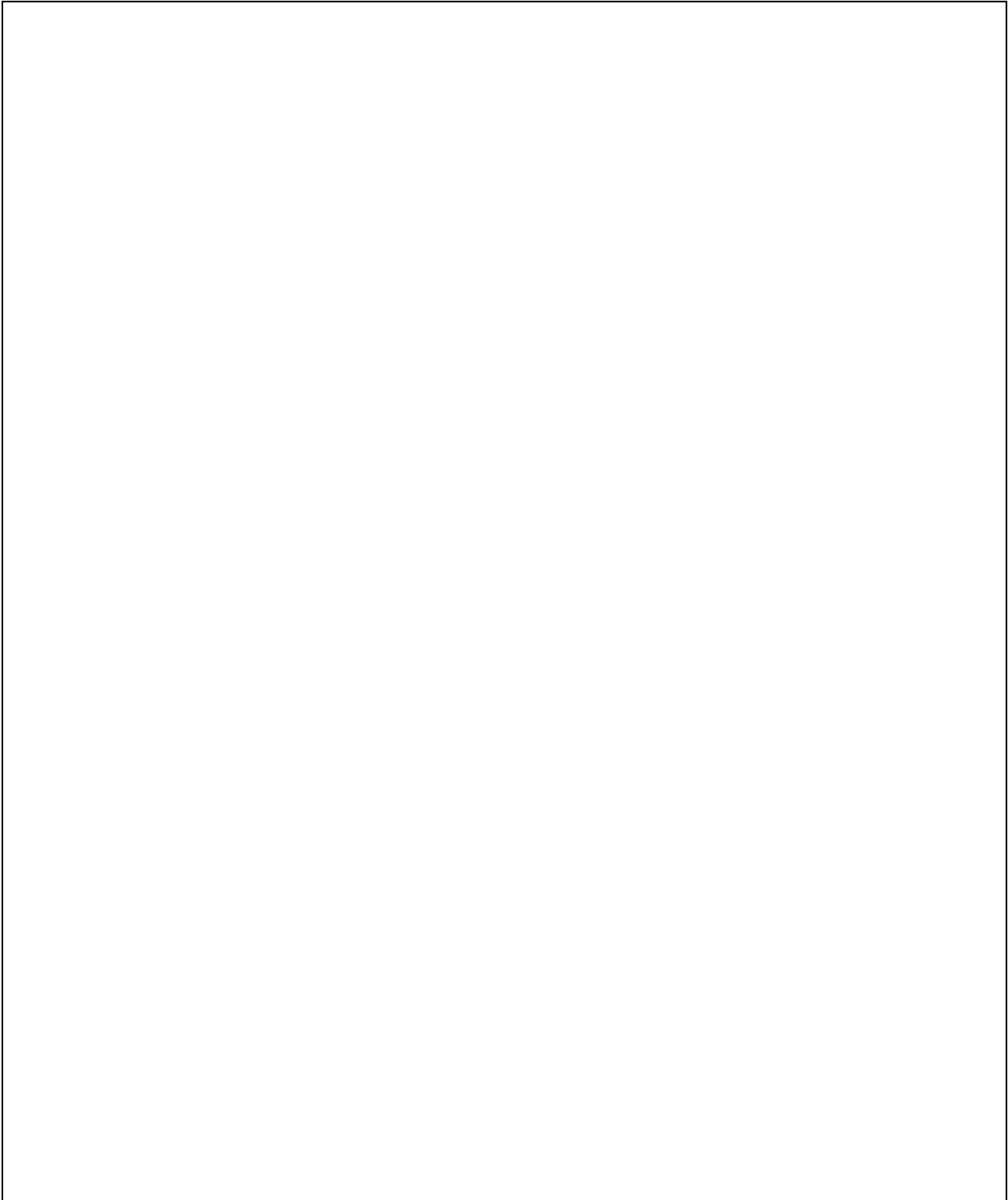
**Table 5.6 –Hydraulic Hose Torque Settings**

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## 5.8 Machine Inspection Record

|    | <b>MACHINE INSPECTION RECORD</b><br><b>(For SP Cutterbar)</b> | Pre-delivery inspection:   | Select |
|---|---|----------------------------|--------|
|   |   | Installation inspection:   | Select |
|   |   | Daily pre-work inspection: | Select |
| Model:  | Serial No:  |                            |        |
| Inspector name (print):   | Inspection date:  |                            |        |
| Company/Position:   |   |                            |        |
| Inspector signature:  |   |                            |        |
| Visual Checks   |   | Comments                   | OK     |
| Check that an operator's instruction manual in the correct language for the working territory is in the machine document holder |   |                            |        |
| Check that the serial number printed on the parts manual supplied with the machine matches the serial number of the machine     |   |                            |        |
| Warning decals are present, clean and in good order   |   |                            |        |
| Check cutterbar mainframe for any structural problems or excessive damage   |   |                            |        |
| Look for any evidence of motor oil leaks  |   |                            |        |
| View the knives for any damage or distortion  |   |                            |        |
| Review all the operational guards fitted to the machine and tractor, check with the instruction book if unsure                  |   |                            |        |
| Ensure all knife guards and safety end fingers are fitted   |   |                            |        |
| Check hoses for damage, kinks, twists, chafing or weeping   |   |                            |        |
| Check that the tractor is equipped to supply the correct hydraulic flow and pressure  |   |                            |        |
| Ensure the machine protection guard is present and fitted correctly for safe transport use                                      |   |                            |        |
| Mechanical Checks   |   | Comments                   | OK     |
| Check knife, knife guard and safety end finger fasteners for tightness  |   |                            |        |
| Ensure all machine to reach arm bracket fasteners are secure and tightened  |   |                            |        |
| Check the security of any hose fittings for tightness   |   |                            |        |
| Ensure that the attaching reach arm and tractor meet the requirements of the machine  |   |                            |        |
| Ensure all grease points are sufficiently greased   |   |                            |        |
| Running Checks  |   | Comments                   | OK     |
| Once you are happy with the above start the tractor and run through the operational checks below.                               |   |                            |        |
| Ensure that the controls respond as intended with regards to powering the machine   |   |                            |        |
| Ensure the knives reciprocate back and forth correctly  |   |                            |        |
| Ensure the knives sit level in the cutterbar  |   |                            |        |
| Run the knives up to operating speed and check for vibration. If vibrating check with the instruction book for reasons          |   |                            |        |
| Other comments:   |   |                            |        |





*Disclaimer: All guidance and maintenance advise to be carried out on the cutterbar as written in this inspection record is deemed on the provision that the operator/maintenance operative has fully read and understood the specific operators manual for the given model of machine and follows the guidance and safety precautions described within it.*

*Spearhead claims no responsibility to any machine and/or physical harm caused by anything other than the practice guidelines stated in its specific machine model operators manual.*

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## 5.9 Machine Storage

Follow the following sections for guidance to correctly storing the cutterbar out of working use and preparing back into correct working condition.

### 5.9.1 Preparing The Machine For Storage & Reintroduction Into Work

Following seasonal use it is important to prepare the machine for storage, thinking of the preservation of parts condition and ease of reintroduction when bringing the machine back into work after periods of no use.

Follow the following points:

5.9.1.1 Thoroughly wash the machine removing all traces of grass and dirt.



**CAUTION!** Danger of machine damage; allow the the cutterbar attachment to cool before cleaning.

Some parts of the cutterbar can become very hot during operation. Cleaning with cold water immediately after use can result in damage and malfunctions in the hydraulic, motor or control components.

Great care should be taken when using pressure washers. **Do not** hold the pressure washer lance close to the paintwork and items containing seals as this can cause damage and discolouration. Take care around electrical components to ensure no water ingress occurs in connections.

Spearhead does not recommend using steam cleaners.

Dry the machine using an air line.

5.9.1.2 Grease all grease points following the guidance given in Section 5.6.1.

5.9.1.3 Liberally place oil on each of the knives to prevent corrosion.

5.9.1.4 Tighten all fasteners to the recommended torque.

5.9.1.5 Plug all open-ended hydraulic hoses to keep the ends free of contamination and dirt.

5.9.1.6 Place all hydraulic hoses over the top of the cutterbar, so there is no risk of bystanders and personnel stumbling/tripping over them.

5.9.1.7 Use touch up paint available from Spearhead where necessary to preserve the appearance of the machine.



**Figure 5.42 – Prepare For Storage**

5.9.1.8 Ideally store the machine in the dry indoors, on a firm surface or a on a pallet, away from the elements. This will greatly preserve the machines physical appearance and condition.

5.9.1.9 Ensure the machine protection guard is fitted as a means of safeguarding people and machine.

It is also best practice to inspect the machine for worn/damaged items which will be required to be replaced before entering work again in the new season. Consult the maintenance schedule for the machine (Section 5.8) as well as other specific maintenance task sections to see what could be required to be done to the machine.

Ordering replacement parts at the beginning of this period with plenty of time will potentially reduce the delays of reintroduction into work with out-of-stock items. Many other local operators will be carrying out the same procedure at the same time.

Where parts are broken, damaged and deemed not fit for use; replace with genuine Spearhead parts using the online Interactive Parts facility at:

<https://my.spearheadmachinery.com/parts/public-interactive-parts-database/>

You will require the machine serial number. Assistance to its location can be found in Section 1.3.

Spearhead cutterbars are designed to withstand the most rigorous conditions and with a little care and attention will give many years of trouble free service. So as not to invalidate the warranty and to avoid problem, use only genuine Spearhead parts and make sure the machine is not driven at excess speed (3 mph/5 kmh).

## 6 Troubleshooting

| <b>Problem</b>  | <b>Cause</b>                                      | <b>Solution</b>  |
|---|---|--|
| <b>Knife is not moving</b>                                  | Incorrect connections                             | Check connections, tighten threaded connections            |
|   | Pump not switched on                              | Switch on pump   |
|   | Foreign objects in cutting system                 | Remove foreign objects                                     |
|   | Defective guards, mount bar or knife head         | Replace defective parts                                    |
|   | Defective hydraulic motor                         | Consult an authorized repair shop; replace defective parts |
|   | Defective knife drive                             |  |
| <b>Material is not cut cleanly</b>                          | Worn guards, mount bar, knives or wear plates     | Replace defective parts                                    |
|   | Incorrect speed of knife drive                    | Consult an authorized repair shop                          |
| <b>Knife drive does not pull through</b>                    | Incorrect oil quantity or pressure                | Consult an authorized repair shop                          |
| <b>Defective seal on hydraulic motor</b>                    | No oil leakage pipe on hydraulic motor            | Consult an authorized repair shop                          |
|   |   | Replace defective parts                                    |
|   |   | Attach oil leakage pipe, if necessary                      |
|   | Disruptions                                       | Check pressure-relief valve                                |
| <b>Extreme oscillation or vibration of the hedge cutter</b> | Excessive speed at hydraulic motor or knife drive | Consult an authorized repair shop                          |

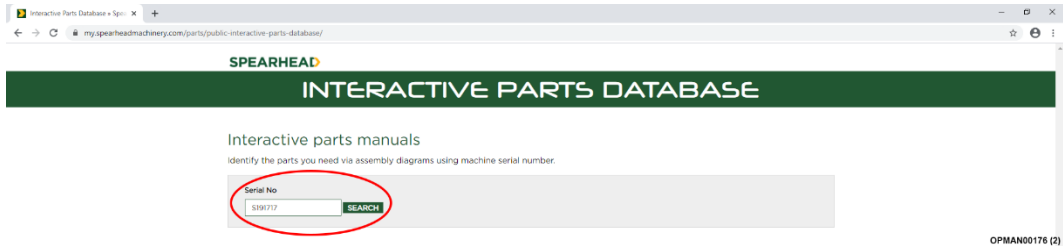
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## 7 Spare Parts

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

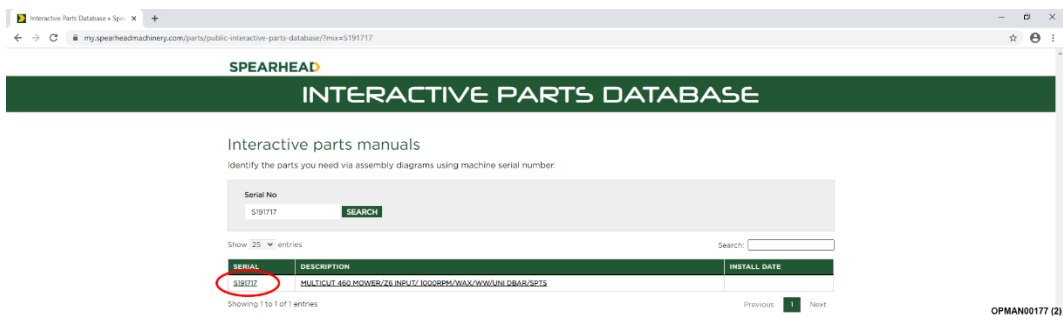
For correct part numbers; use the Spearhead interactive online parts books. These are available at <https://my.spearheadmachinery.com/parts/public-interactive-parts-database/>. You will need to enter the machine serial number; see Figure 1.3.

#### 7.1.1.1 Enter the serial number.



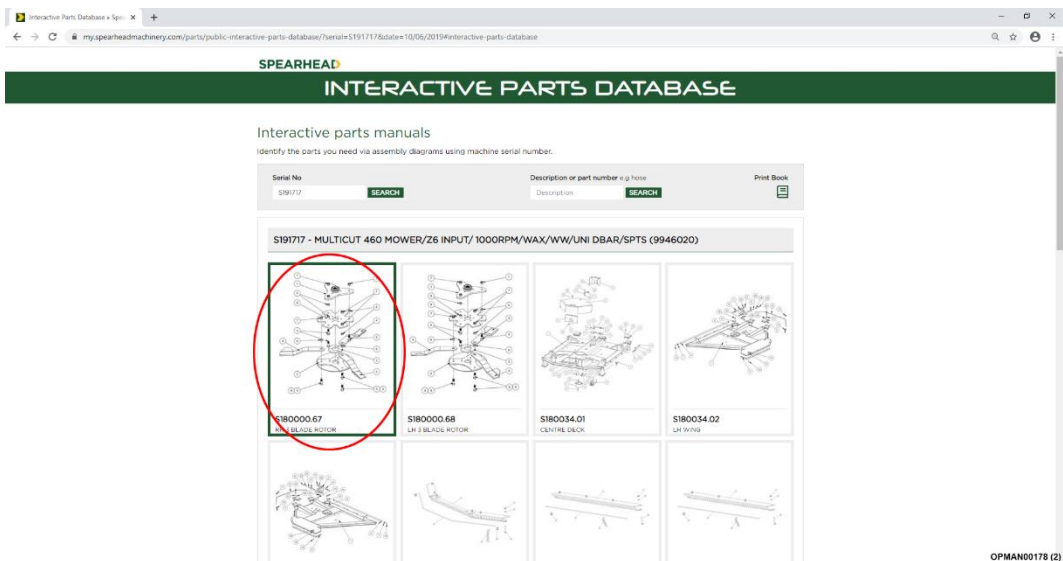
**Figure 7.1 – Type In Serial Number**

#### 7.1.1.2 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**

#### 7.1.1.3 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**

- 7.1.1.4 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. At the top, there are search fields for 'Serial No' (59177) and 'Description or part number e.g. hose'. Below the search fields is a table titled 'Print Part List and diagram' with the following data:

| Ref | Part No     | Description                    | QTY |
|-----|-------------|--------------------------------|-----|
| 1   | 1770602-342 | CHIM BLADE 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   | 2770449     | 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 BOM table. The diagram shows a central carrier assembly with multiple blades and associated hardware.

Figure 7.4 – Exploded Parts Breakdown With Bill Of Materials

## 7.2 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.

## 7.3 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 interface includes a 'Your location' field with 'Evesham' entered, a 'Search radius' dropdown set to '25 mi', and a 'Results' dropdown set to '25'. Below the search fields is a map of the United Kingdom and surrounding regions, with a green circle indicating the search radius centered on Evesham. The map shows major cities and geographical features across the UK, including London, Manchester, and Liverpool.

Figure 7.5 – Dealer Locator

# Notes



# Notes