

# Shelbourne

REYNOLDS

# 600

## OPERATORS MANUAL

### ORIGINAL INSTRUCTIONS



# POWERERBLADE

Shelbourne Reynolds Engineering Ltd  
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 Bury St Edmunds  
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 IP31 2AR  
 England

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Issue 5 13/10/2020

[www.shelbourne.com](http://www.shelbourne.com)







Dear Customer,

Parts manuals are not supplied with this machine but they can be ordered from your Shelbourne Reynolds dealer or alternatively downloaded from the Shelbourne Reynolds website ( [www.shelbourne.com](http://www.shelbourne.com) ) Manuals are located through the Parts and Service section followed by Manuals and then to Powerblade Manuals. Here you will find Operators and Parts manuals for various years' models. The Machine and Parts Manual Number for your machine is -

Tick	Machine No.	Manual No.	Machine Description
	809911 01	MAN-10105	Trimmer assy, Standard Left hand build parts
	809902 01	MAN-10105	1.2Mt Head assy (LH/outboard drive) inc hyd roller
	809902 02	MAN-10105	1.5Mt Head assy (LH/outboard drive) inc hyd roller
	809902 04	MAN-10105	1.2Mt Head assy (RH/Inboard drive) inc hyd roller
	809902 05	MAN-10105	1.5Mt Head assy (RH/Inboard drive) inc hyd roller

Powerblade Serial Number

**PB6**

### **ORDERING SPARE PARTS**

To ensure that you order the correct part from your SRE dealer please use the following procedure.

#### **ALWAYS QUOTE THE MACHINE AND SERIAL NUMBERS WHEN ORDERING.**

Refer to the Parts Manuals front page/s, listing the machine assemblies. Select the correct machine assembly number which is printed in the top left corner of the page (starting with 8099\_\_ 01), This machine number is listed above or can be taken off the Powerblade identification plate.

Looking down the page, select the relevant sub assembly that your required part falls within. Sub assemblies start from 8090\_\_ 01. Note the year or serial number of the machine may determine a correct sub assembly if more than one is listed.

Continue through the manual and find the relevant sub assembly parts listing. Again the number will be printed in the top left corner; the sub-assemblies are in numerical order.

Having found the correct parts list, you will find the corresponding drawing by either looking at the facing page or progressing through the manual to the next drawing. The drawings indicate the components by item numbers, which you will find, are repeated in the left-hand side of your parts listing, and therefore referring to the correct part.

Note all parts will not be found from the sub assemblies listed below the machine number. Other parts could be from specific optional kits. These kits will be found in numerical order further through the manual and start with KIT- \_ \_ \_ \_ \_.



## EC Declaration of conformity for machinery

(Machinery Directive 2006/42/EC, Annex II, sub. A)

Manufacturer: Shelbourne Reynolds Engineering Ltd.

Address: Shepherds Grove Industrial estate,  
Stanton,  
Bury St Edmunds,  
Suffolk.  
England.  
IP31 2AR

Name and address of the person (*established in the European Community/EEA*)  
authorised to compile the technical file (*to the authorities on request*):

Name: Mr. Neil Smith

Address: As stated above.

Herewith we declare that :

DESIGNATION:

**HEDGE / VERGE TRIMMER**

MODEL:

**6**

TYPE:

**809911 01**

MACHINE No.:

SERIAL No.:

**PB6**

- is in conformity with the relevant provisions of the Machinery Directive (2006/42/EC)
- is in conformity with the relevant provisions of the EMC Directive (2004/108/EC)



Neil Smith  
Director

Place: **Stanton, England.**

Date:



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## **SECTION 1:**

## **INTRODUCTION**

### **1.1 FOREWORD**

This manual will assist the operator in using the Shelbourne Reynolds Powerblade trimmer range of 600 trimmers to realise their full potential whilst indicating safe procedures. This manual should be used in conjunction with the manual of the tractor or prime mover.



### **1.2 IMPROVEMENTS AND CHANGES**

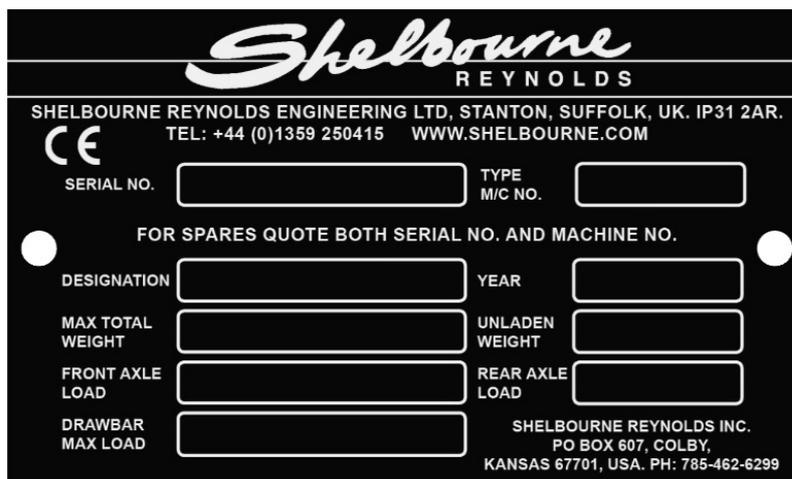
Shelbourne Reynolds are continually improving their products to meet the farmers needs and therefore reserve the right to make improvements and changes when practical to do so, without incurring any obligation to make changes and additions to equipment which has been sold previously.

### **1.3 SERVICE PARTS**

Use guaranteed and genuine Shelbourne Reynolds service parts on Shelbourne Reynolds machinery to ensure maximum life and best performance. These are available through your Shelbourne Reynolds dealer.

## 1.4 MACHINE IDENTIFICATION

The serial and machine numbers are printed on a plate, attached to the main frame, near to the tractor's left lower link arm end.



The image shows a black identification plate with white text and input fields. At the top, the 'Shelbourne REYNOLDS' logo is displayed. Below the logo, the company name 'SHELBOURNE REYNOLDS ENGINEERING LTD, STANTON, SUFFOLK, UK. IP31 2AR.' is printed, along with contact information: 'TEL: +44 (0)1359 250415' and 'WWW.SHELBOURNE.COM'. A CE mark is visible on the left. The plate contains several input fields for 'SERIAL NO.', 'TYPE M/C NO.', 'DESIGNATION', 'YEAR', 'MAX TOTAL WEIGHT', 'UNLADEN WEIGHT', 'FRONT AXLE LOAD', 'REAR AXLE LOAD', and 'DRAWBAR MAX LOAD'. A central instruction reads 'FOR SPARES QUOTE BOTH SERIAL NO. AND MACHINE NO.'. At the bottom right, the address 'SHELBOURNE REYNOLDS INC. PO BOX 607, COLBY, KANSAS 67701, USA. PH: 785-462-6299' is provided.

## 1.5 POWERBLADE WARRANTY POLICY

### 1.5.1 MACHINE REGISTRATION

To qualify for the full benefit of the warranty set out in clause 1.5.2 of this warranty policy (the "Warranty"), it is the buyer's responsibility to ensure that the selling dealer has completed the warranty registration details and that they are submitted to Shelbourne Reynolds Engineering Ltd. within 30 days from the date of delivery. Using the machine implies the knowledge and acceptance of these warranty terms.

### 1.5.2 NEW MACHINE WARRANTY

All new machines supplied by **Shelbourne Reynolds Engineering Ltd.** ("**Shelbourne**"), are warranted to the original purchaser, under normal use and service, to be free from defects in material and workmanship for a period of 12 months from the date of delivery to the original purchaser (the **Warranty Period**), subject to the terms set out in this warranty policy.

No other warranty is given by Shelbourne regarding the machine, and no person has any authority to give any such warranty for or on behalf of Shelbourne, other than where given in writing signed by a director of Shelbourne.

### 1.5.3 WARRANTY CLAIMS

All claims must be submitted by a Shelbourne authorised dealer providing that the original purchaser has;

- 1) given notice in writing with full information regarding the failure, to Shelbourne (or the Shelbourne authorised dealer) during the Warranty Period, and within 15 days of the failure;
- 2) given Shelbourne (or the Shelbourne authorised dealer) a reasonable opportunity of examining the machine or the damaged or defective parts;

- 3) if requested by Shelbourne, returned the damaged or defective parts (via the original Shelbourne authorised dealer) within 30 days of notification of a defect;

then Shelbourne shall, at its opinion, repair or replace the defective parts, or refund the price of the defective parts

#### **1.5.4 REPAIR COSTS**

The original purchaser or Shelbourne authorised dealer shall not repair, or arrange for a repair, of the machine without the prior written authority of Shelbourne. Such authority may only be given by Shelbourne service personnel. **Shelbourne will not be liable for the cost of any repairs carried out without its prior written consent to the work being done.**

If Shelbourne authorises a repair of the machine, all claims for repair costs must be submitted to Shelbourne by a Shelbourne authorised dealer within 15 days of the date of repair on a Shelbourne Warranty Claim Form.

Repairs should be completed by a Shelbourne authorised dealer (or another repairer with the prior written consent of Shelbourne).

The submission of a claim is not a guarantee of payment. Shelbourne will only reimburse the reasonable costs and expenses incurred in connection with any repair. The decision reached by Shelbourne is final.

#### **1.5.5 EXCLUSIONS**

Shelbourne will not be liable for the machine's failure to comply with the Warranty in any of the following circumstances:

- 1) damage due to improper use or abusive operation
- 2) damage or depreciation caused by normal wear and tear;
- 3) the machine has been subjected to alteration, modification or fitment of non-genuine Shelbourne parts without the prior consent of Shelbourne;
- 4) accidental damage, including (but not limited to) damage caused by contact with overhead power lines, damage caused by foreign objects (e.g. stones, metals and any materials other than vegetation);
- 5) the machine has been neglected and not maintained and serviced fully in accordance with the details and maintenance schedule set out in the Operators Manual, and only using Shelbourne genuine parts. Proof of service work may be requested prior to approval of any claim under the Warranty;
- 6) failure due to use of incorrect oil or lubricants, contamination of the oil, or oil which has served its useful life or failure to carry out proper maintenance as recommended in the Shelbourne Operators Manual;
- 7) where the original purchaser has continued to use the machine after they became (or should reasonably have become) aware of the defect with the machine.

**Continued use of the machine after a defect is discovered could cause further failures for which Shelbourne cannot be held liable and may also have safety implications.**

- 8) the Shelbourne serial number plate on the machine has been removed or altered;
- 9) failure by the customer to release the machine for repair will not be accepted as a reason for delay in repair or submitting warranty claims.

The Warranty shall not apply in respect of any:

- 1) wearing items which includes flails, skids, bearings or any other items which are soil engaging or normal wearing or consumable items;
- 2) hoses that have suffered external damage, unless the damage is a direct result of poor routing during assembly. Complete hoses must be returned for warranty within this period. Any which have been cut or repaired will be rejected;
- 3) repeat or additional repairs resulting from incorrect diagnostics, unless advised by Shelbourne.
- 4) poor-quality previous repair work.

#### **1.5.6 LIMITATIONS OF LIABILITY**

Shelbourne and the Shelbourne authorised dealer shall not be liable to the original purchaser under any circumstance for injuries, death, property damage or damages of any kind whatsoever directly, consequential or contingent to any person or property caused by the use of the machine.

Shelbourne shall not be liable for any consequential loss such as the following costs or types of loss (whether direct or indirect):

- 1) Loss of profit;
- 2) Loss of or damage to goodwill;
- 3) Loss of sales or business;
- 4) Loss of agreements or contracts or business opportunity;
- 5) The cost of lost consumables (such as oil);
- 6) Any loss or costs arising from the inability to use the machine due to any defect with the machine, and during the time taken to repair or replace the machine;
- 7) The cost of hire or purchase of any replacement machine;
- 8) Recovery of broken-down machine;
- 9) Damage to or loss of crops or vegetation;
- 10) Damage to carrying tractor;
- 11) Damage caused by exceeding the tractor OEM (original equipment manufacturers) specification for implement mounting and hitch capability;
- 12) Any other indirect or consequential loss;

In view of the Warranty given by Shelbourne, the terms implied by sections 13 to 15 of the Sale of Goods Act 1979, and all other implied warranties or conditions regarding the quality or suitability of the machine, are, to the fullest extent permitted by law, excluded from this warranty policy and any contract or agreement between Shelbourne and either the original purchaser or the Shelbourne authorised dealer.

Nothing in this warranty policy limits any liability which cannot legally be limited, including liability for:

- 1) death or personal injury caused by negligence;
- 2) fraud or fraudulent misrepresentation;

- 3) breach of the terms implied by section 12 of the Sale of Goods Act 1979 (title and quiet possession); and
- 4) breach of section 2 of the Consumer Protection Act 1987.

**1.5.7 EXTENDED WARRANTY**

Shelbourne will provide an extended Warranty for an additional 12 months on a parts only basis, solely for the components detailed below, subject to all the other terms and conditions of this warranty policy. This is a conditional extended warranty offered solely at the discretion of Shelbourne.

	700 Series	800 Series
Gearbox	✓	✓
Hydraulic Valves	✓	✓
Hydraulic Pump	✓	✓
Hydraulic Motor	✓	✓
Hydraulic Cylinders	✓	✓
Electronic Controls	✓	✓

**1.5.8 WARRANTY ON SPARE PARTS**

Shelbourne warrants that any spare part or component supplied by Shelbourne in accordance with this limited warranty are free from defects in material or workmanship from the date of sale to the original purchaser for 6 months, subject to the conditions and limitations in clauses 1.5.4 to 1.5.7 of this warranty policy. Shelbourne will at its option, either repair or replace the defective part free of charge providing that any warranty claim is supported with a copy of the invoice to the end user for the failed part. Original Purchaser shall be responsible for labour and all freight charges to and from the place where the warranty work is performed.

**Shelbourne Reynolds Engineering Ltd. cannot be held responsible for any failures or safety implications arising from the use of non-genuine parts. Use of non-genuine parts may seriously affect the machine’s performance and safety.**

**1.5.9 TRANSFER OF WARRANTY**

Shelbourne may at its sole discretion allow this warranty to be transferred to a subsequent owner of the machinery for the balance of the Warranty Period, subject to all the warranty conditions being met and only with Shelbourne giving prior written consent.

**1.5.10 EXPORT CUSTOMERS**

If you are based outside of the UK, warranty terms and conditions outlined above may differ depending on your market. Please contact Shelbourne Reynolds Engineering Ltd. for further information.



## **SECTION 2:                      SAFETY PROCEDURES**

### **2.1 ACCIDENT PREVENTION.**

The following safety instructions are applicable for all sections of this manual.

Accident programmes can only prevent accidents with the co-operation of the persons responsible for the operation of the equipment.

For the safety of others, operate equipment with care and do not take unnecessary risks, which could cause an accident.

Please read all safety instructions contained in this operating manual with the utmost care and also observe all safety signs attached to the Powerblade trimmer.

Follow these instructions to prevent accidents. These instructions must also be made available to all other users. You are advised to refrain from any working methods, which may be hazardous.

All relevant accident prevention regulations governing the operation of agricultural machinery, as well as other generally acknowledged health and safety regulations and road traffic regulations must be strictly observed.

The tractor manufacturers, operator manual safety precautions should also be adhered to when using a Shelbourne Reynolds Powerblade trimmer.

The 'Safe stop' procedure is mentioned throughout this manual. It is extremely dangerous to carry out any work on a machine while it is under power. The most important safety measure is to follow the Safe Stop procedure before carrying out any maintenance or adjustments, including dealing with a blockage or other problem:

The procedure is as follows:

- Put the handbrake on.
- Make sure the tractor controls are in neutral (equipment made safe).
- Stop the engine (or turn off the power).
- Remove the key (or lock-off the power supply).

For Powerblade trimmers also ensure to follow below:

- Stop the tractors forwards or backwards movement, immediately.
- Stop the cutting head drive, allow time to totally stop.
- Lower the head carefully to the ground.
- Stop the PTO drive.
- Isolate the trimmer controls.

### **CAUTION**

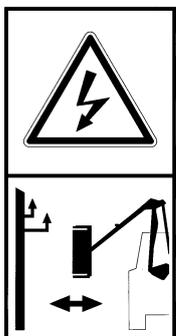
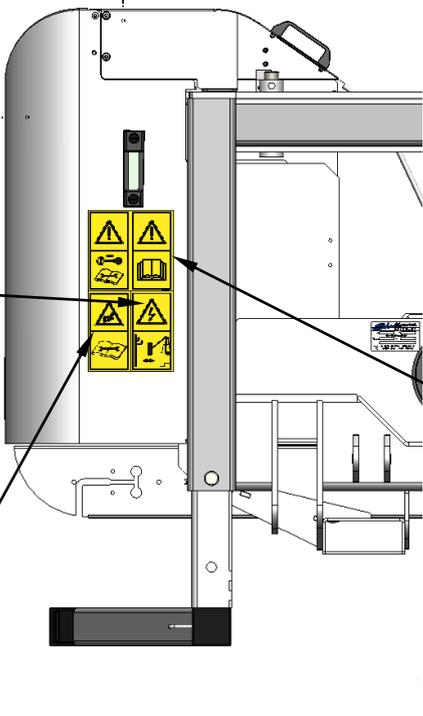
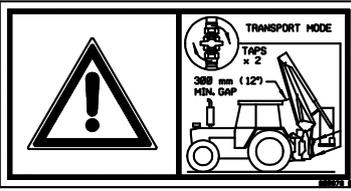
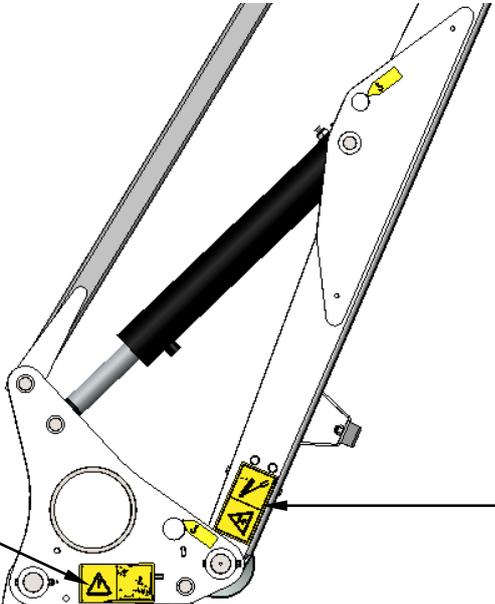
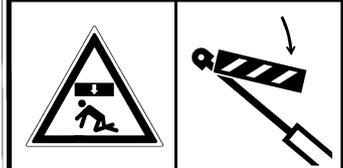


This symbol will appear throughout this manual whenever your safety, the safety of others or the machinery, is involved.

## 2.2 SAFETY SIGNS

The following safety signs appear on the machine and are for your safety and the safety of other people. Ensure that you identify each safety sign and understand its warning.

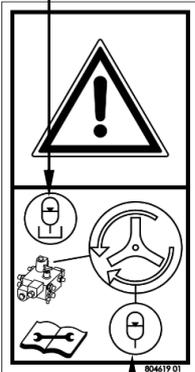
 These safety signs must be kept in a legible condition and must be replaced if missing or damaged. This is especially the case when whole sections are replaced when making repairs. Replacement safety signs are available as spare parts through your dealer or importer.

<p><b>800220 01</b> Danger of electrocution. Ensure head and booms are kept a safe distance from electrical power lines.</p>			<p><b>TNF-0011</b> Stop the engine and remove the key from the tractor's ignition before carrying-out any work on the machine.</p>
<p><b>800221 01</b> Hydraulic oil is dangerous when under pressure and can be injected into the body. Always ensure the hoses are in good order before operating.</p>			<p><b>TNF-0011</b> Carefully read the manual before using / operating the machine.</p>
			
<p><b>800878 01</b> Lock cylinders using taps before transportation.</p>		<p><b>210435 01</b> Lock cylinders before working beneath head or booms. High risk of crushing.</p>	

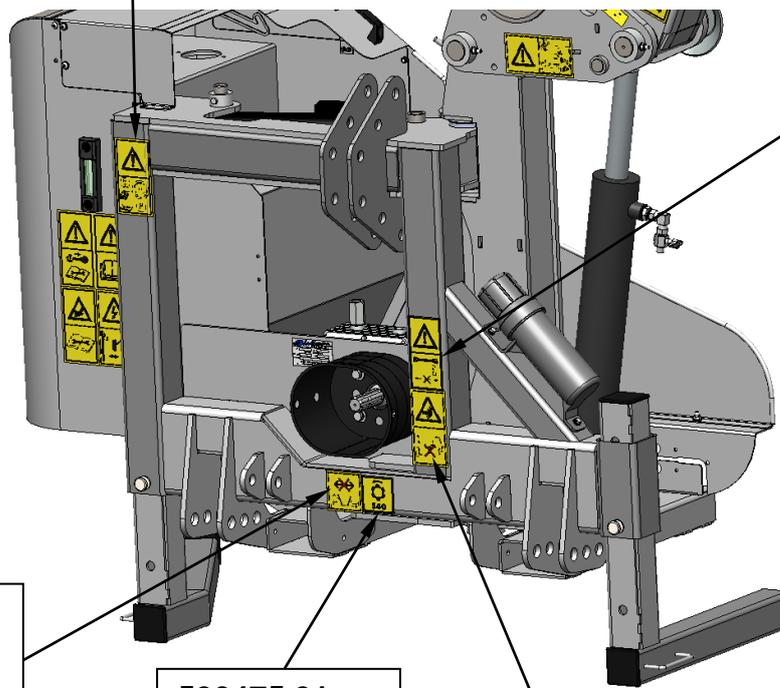
**804619 01**

Accumulator contains highly pressurised oil. Before carrying out service work on lift service firstly lower head to the ground (head will drop once tap being turned anti-clockwise) and then de-pressurise system. High risk of pressurised oil loss and injury.

De-pressurised Accumulator.

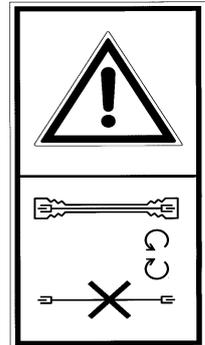


Pressurised Accumulator.



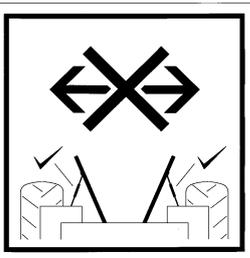
**193391 01**

Ensure PTO shaft guards are fitted and chains attached.



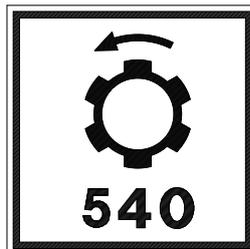
**800212 01**

Tighten check chains to stop lateral movement.



**590475 01**

PTO shaft rotational speed must not exceed 540rpm.

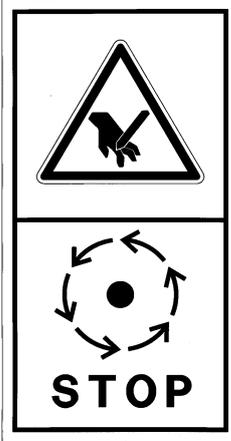


**800219 01**

Stay clear of tractor-machine area when coupling-up. High risk of crushing.



**800222 01**  
 Never reach into Flail area.  
 Allow machine to stop before working on it.  
 Danger from cutting.



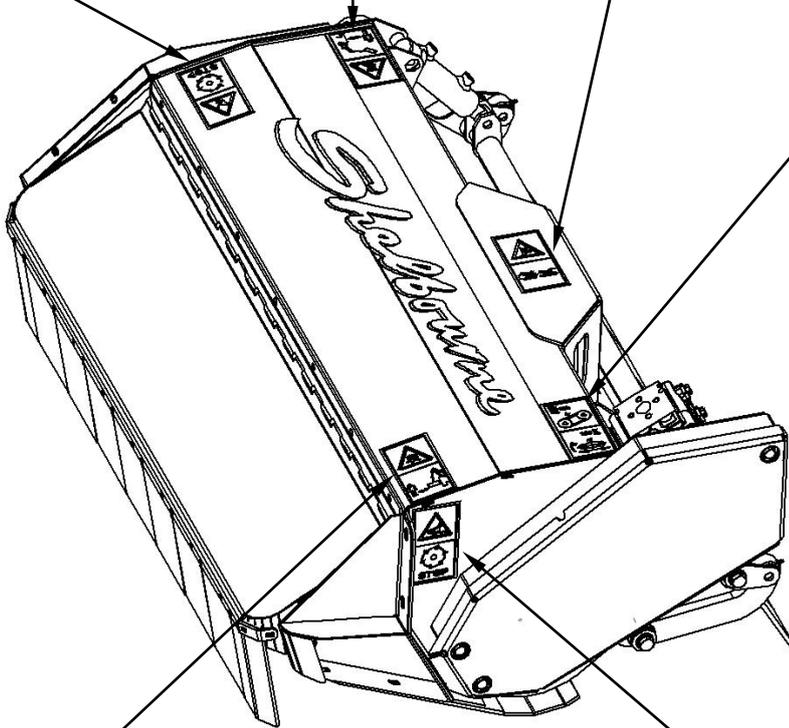
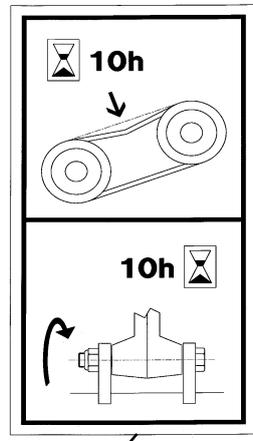
**800217 01**  
 Stay a safe distance from the machine.  
 Danger from crushing hazards.



**800215 01**  
 Never reach into the crushing danger area as long as parts may move.



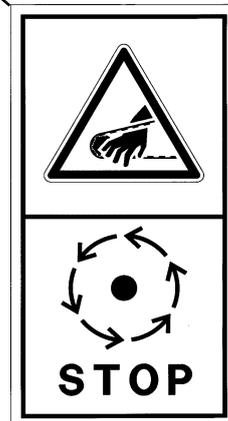
**800213 01**  
 Check bolt / belts for tightness.



**800214 01**  
 Danger from flying debris.  
 Ensure all personnel keep a safe distance from the flail head.



**800218 01**  
 Allow machine to stop before adjusting belts.



## **2.3 ACCIDENT PREVENTION BEFORE STARTING**

Read the manual thoroughly.

Read the tractor operators manual thoroughly.

Ensure that the operator's manual is handed to the customer.

Ensure bystanders are at a safe distance when moving the Powerblade trimmer by overhead slinging or forklift.

Ensure Powerblade trimmer stands are locked into correct position for transportation (see section 4).

If moving the Powerblade trimmer by overhead lifting, use the designated lifting points, (see section 4). Ensure that the slings / chains are rated accordingly, and that the angle of the slings / chains are set in accordance to lifting regulations.

If moving the Powerblade trimmer by forklift use the designated forklift shoes (see section 4).

Ensure the forklift has enough capacity to safely lift and move the machine.

Ensure that the machine is parked on a firm and level site, with the lift cylinder taps locked, along with booms correctly positioned and being blocked correctly to ensure the Powerblade trimmer is stable (See section 4).

Ensure that the tractor size and weight is suitable for the size and weight of the Powerblade trimmer (see section 3 and 5).

Do not carry out any PDI work without appropriate PPE (Personal Protective Equipment), wear gloves, tight fitting cloths and ensure hair tied back.

Review the PDI check list, printed at the start of this manual. Double check the items listed. Pay particular attention to checking flail nuts & bolts, tractor size is suitable, tractor tire pressure correct, along with any weighting requirements.

If the length of the PTO shaft needs adjusting always follow relevant workshop & power tool health and safety procedures / guidelines.

Follow appropriate safe manual handling procedures.

Ensure the 12v power supply is connected correctly (see section 5).

Ensure the control system is fitted securely into the tractor (see section 5).

Ensure the emergency stop is functioning correctly (electric option only).

Ensure cutting head is fitted with safety curtains and are fully intact.

Ensure the flails, and their fixings, should be of the type recommended by Shelbourne Reynolds, securely attached and should not be missing or damaged.

Ensure that tractor windows are protected with protective glazing, metal mesh or polycarbonate guards of appropriate size and strength, so that the operator is protected from any thrown debris or component.

Ensure all tractor mesh/polycarbonate guards are suitable for the job, undamaged and well maintained.

Ensure all tractor windows are closed at all times.

Ensure correct stabilization system is selected for the size of tractor and Powerblade trimmer (see section 3 and 5).

If assembling stabilizing or axle frame onto trimmer or tractor, use lifting equipment, be careful not to trap/pinch fingers, due to confined space.

Ensure all pins and their lynch pins are fitted and correctly secured.

The Powerblade trimmer may be used only if all safety devices, e.g. detachable guards, flail head rubber curtains, PTO guards etc.... are fitted correctly and in proper working order.

Nuts and bolts should be checked at regular intervals and tightened if necessary. Use appropriate ladders or steps if unable to reach safely from the ground.

Ensure to tighten all nuts and bolts to the correct torque.

Ensure all road lights are in full working order and operate correctly.

Ensure that no person is working on the Powerblade trimmer or tractor.  
Always perform an inspection before starting.

Check that all observers are clear of the Powerblade trimmer and tractor. Warn bystanders by sounding the horn of the tractor several times. Ensure your visibility is kept clear at all times.

Check there are no foreign objects inside or interfering with the Powerblade or tractor.

Familiarise yourself with the controls and functions of the machine and practice them in a safe location before attempting to start work (see section 6).

Ensure to grease machine prior to use (see section 8).

Oil levels must also be checked prior to use (see section 8).

The tractor must be fitted with a roll over protection system. If fitted, seat belts must be worn at all times.

## **2.4 ACCIDENT PREVENTION WHEN COUPLING AND UNCOUPLING TO THE TRACTOR**

The work of coupling and uncoupling the Powerblade involves a high risk of injury, due to the compact fitting design.

Use only the procedure described in section 5 for further information.

When the Powerblade trimmer is fitted with an axle-mounting sub frame ensure that the tractor is fitted with compatible axle latches of the correct spacing.

Ensure the Powerblade trimmer is sitting stable on level ground and cannot tip over in any direction, before coupling and after uncoupling.

Ensure the Powerblade stands are locked into position (see section 4).

Ensure to have read the tractor operators manual thoroughly and practice using the tractor controls (especially those relating to the 3 point linkage) prior to starting to couple the machine.

Check that all observers are clear of the Powerblade and tractor. Warn bystanders by sounding the horn of the tractor several times.

Keep clear of tractor/machine area when coupling-up.

When attaching slowly reverse the tractor towards the Powerblade trimmer - always ensure that there are no other persons in the vicinity of the machine or the tractor.

Follow the 'SAFE STOP' procedure before leaving the tractor seat.

Never operate the Powerblade controls from any position other than the tractor seat. Especially when coupling and uncoupling the machine.

If visibility is poor from the tractors cab or uncertain of attachment, regularly stop movement and get out checking the coupling progress. Perform a 'safe stop' procedure before leaving the tractor cab.

Follow appropriate safe manual handling procedures.

Ensure not to trap or pinch fingers, hand or any body part due to confined working space.

Ensure not to stand/climb on the machine or the tractor rear linkage when coupling or uncoupling.

Ensure extra care taken when removing hydraulic couplings from the tractor.

Connect the Powerblade trimmer to the tractor linkage using only the method recommended in the tractor operator's manual.

Ensure all pins and their lynch pins are fitted and correctly secured.

Check that the maximum combined gross weight of the Powerblade and tractor do not exceed the manufacturers recommended maximum permissible loading of front or rear axle, wheels and tyres. Some tractors might also require additional front weights, wheel weights or ballast (see section 5).

Ensure that when the Powerblade trimmer can be operated in all positions, the tractor still remains within its safe working limits.

## **2.5 ACCIDENT PREVENTION WHEN USING THE PTO SHAFT**

Read the PTO (power take-off) manual thoroughly.

Ensure that the PTO operator's manual is handed to the customer and is supplied with the shaft.

It is recommended to use appropriate PPE (Personnel Protective Equipment), wear gloves, close fitting clothing and ensure hair tied back when dealing with the PTO shaft.

Use only the PTO shaft supplied with the Powerblade trimmer, which is intended for use with the machine.

Follow appropriate safe manual handling procedures during fitment of PTO shaft.

Ensure not to trap or pinch fingers, hands or any body part due to confined working space.

Follow the 'SAFE STOP' procedure before proceeding to fit / remove the PTO shaft.

Ensure that it is fitted with the prescribed protective equipment (protective tube and funnel-shaped PTO shaft guard must be fitted). Ensure the enclosed guard is along the entire length from the tractor PTO to the power input connection on the machine.

Ensure the PTO shaft is fitted in the correct orientation (see section 5.8).

Make sure that the tubes and guards both overlap by the prescribed distance when lifted to working height (see section 5.8).

Ensure that the PTO yoke locking pins are fully/properly engaged onto the shafts groove when fitting.

Ensure the PTO has been greased.

Ensure the PTO guard safety chains are fitted and secure to stop guard tube rotating.

Be absolutely sure that there is nobody standing in a dangerous proximity to the Powerblade trimmer when you switch on the PTO shaft.

The PTO shaft speed of the tractor must correspond with the maximum permissible rotational speed of the Powerblade trimmer. The angle of attachment will depend on the operating length of the PTO shaft, the height of the machine and on the relative position of the tractor's PTO shaft. Always switch off the PTO shaft if the angle of divergence becomes excessive or whenever the PTO shaft is not required.

## **2.6 ACCIDENT PREVENTION WHEN USING THE HYDRAULIC SYSTEM**

Due to the possibility of oil contamination on your skin it is recommended to use PPE (Personnel Protective Equipment), wear gloves, when handling hydraulic hose connectors.

Beware, residual pressure in hydraulic lines.

Do not connect to tractor hydraulic system if it can deliver more than 210 bar of pressure (hydraulic roller hoses – optional).

Do not connect the hydraulic hoses to the tractor's hydraulic system until you have made sure that the system is at zero pressure on both the tractor and the Powerblade trimmer.

Ensure all hydraulic hoses are correctly routed ensuring they avoid damage by chaffing stretching or pinching. Ensure they are secured correctly using the correct fixings.

Check that all machine fittings and couplings and machine fittings are tight and in good condition.

The hydraulic system generates extremely high pressures. All piping, hoses and connections must therefore be checked regularly for leakage and visible external damage.

Use proper and thorough means of searching for leakage and repair all damage immediately. Never attempt to detect a hydraulic leak using your hand.

Sputtering hydraulic oil can cause injuries and fires. Call a doctor immediately in the event of injury.

Hydraulic systems can generate heat within its components, be aware if touching / servicing components directly after use.

Beware of contact with hot surfaces.

Ensure to repair any oil leaks immediately as failure to do so may cause malfunctioning of the machine.

Ensure the Powerblade trimmer cutting head is on the ground before carrying out any work on the hydraulic system.

Ensure Powerblade trimmer cutting head is on the ground before de-pressuring the accumulator.

Ensure to de-pressurise the accumulator for safe removal (see section 8.8).

Take extreme care when working on hoses related to the accumulator. Even when lift float is switched off the float block will maintain the high pressure in the accumulator (so that when switched on the head does not immediately fall to the ground). The head will need to be lowered to the ground, perform a 'SAFE STOP' procedure before depressurising the accumulator (see section 8.8).

Do not assume that having partially unscrewed a connection there will be no residual pressure. 'Soft-seal' couplings can hold high pressures even with the fitting partially unscrewed.

## **2.7 ACCIDENT PREVENTION WHEN OPERATING.**

The Powerblade trimmer must not be put into operation until the user has been given proper initial instructions either by the dealer or by one of Shelbourne Reynolds' representatives or employees.

It is the owner's responsibility that anybody else who uses the machine is competent and has received instructions or training.

The Powerblade trimmer may be used only if all safety devices, e.g. detachable guards, are fitted and in proper working order.

Nuts and bolts should be checked at regular intervals and tightened if necessary.

Oil levels must also be checked regularly.

PPE (Personnel Protective Equipment) is recommended while operating the Powerblade trimmer. Appropriate equipment should be worn such as overalls and gloves. Ensure to keep the tractor doors and windows closed while operating.

Do not work around the Powerblade trimmer in loose clothing that might get caught up.

Follow the 'SAFE STOP' procedure before proceeding to leave the tractor seat.

Only use the Powerblade on a tractor that is capable of taking its weight. Use weights or ballast as required ensuring stability of the unit.

Ensure that when the Powerblade trimmer can be operated in all positions with the tractor still remaining within its safe working limits.

Ensure the machine is in good working condition prior to use.

Ensure to only use the machine for cutting materials within its capability (see section 7.11). Use this machine only for the tasks to which it's been designed to do.

One person should use the Powerblade trimmer only. When the operator identifies someone approaching or is too close for their safety, the operator shall stop operating until the person is clear again.

Bystanders need to keep a safe distance from the Powerblade trimmer and tractor while it is being operated. Do not operate the Powerblade trimmer with bystanders in the danger area.

Ensure that bystanders are not standing in the driving or flail head cutting line of the tractor or Powerblade trimmer during operation or transportation.

No person may be allowed to ride on the Powerblade trimmer.

No other person may be allowed to ride in the tractor when the Powerblade trimmer is being operated.

In the event of a malfunction, immediately cease operation and secure the Powerblade trimmer and tractor in its stationary position. Malfunctions must be eliminated immediately.

Ensure to follow the 'SAFE STOP' procedure to ensure that all power has been ceased to the Powerblade.

Do not go under or within any part of the Powerblade trimmer unless it is securely blocked or locked with a mechanical device.

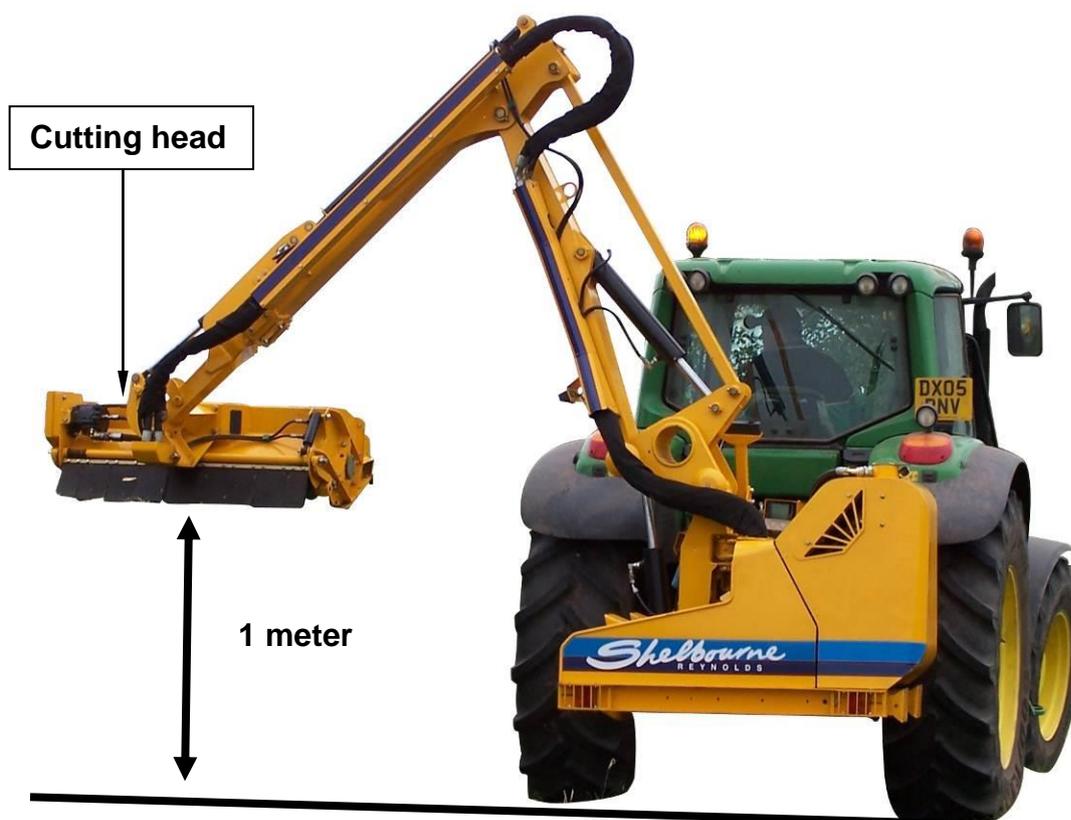
Follow the 'SAFE STOP' procedure before proceeding to leave the tractor seat for removing or opening any guards or clearing a blockage.

Always ensure that safety screens are fitted to the tractor in such a way that the operator is protected from thrown debris or objects.

Always ensure the Cutting head rotor is clear of obstacles or material and free to rotate prior to engaging the flail rotor.

Check that all observers are clear of the Powerblade trimmer and tractor. Warn bystanders by sounding the horn of the tractor several times. Ensure your visibility is kept clear at all times, before engaging the cutting head.

Ensure to always engage the Cutting head rotor with the Flail head horizontal to the ground and within 1 meter (see below).



NEVER let anybody approach the machine whilst the flail is running.

Always inspect the work area to ensure any dangerous objects (stones, steel posts, wire etc.) are removed before commencing cutting.

Always operate the machine at the correct PTO speed (see section 7).

Always adjust the driving speed to suit the driving conditions. Avoid fast turning when driving uphill, downhill or across a slope.

Do not cut the far side of a hedge with the flails towards the operator.

Ensure the cutting head adjustable nose is set correctly to control any debris (see section 7.6).

Do not check or adjust the machine whilst the PTO shaft is engaged by the tractor. Follow the 'SAFE STOP' procedure before proceeding to leave the tractor seat.

When intending to operate on the highway consult the local Highways Department regarding notifications and approval, as rules and regulations will vary from area to area.

Never use the boom arms as a crane in any way.

Always avoid overhead power lines. Use safe working practices when work needs to be done near overhead power lines. Cutting head units may be able to reach over 5.2meters, the minimum height of overhead power lines (see section 7.18).

Ensure sufficient clearance is always maintained between the Powerblade booms and the tractor.

Ensure sufficient clearance is always maintained between the tractor, Powerblade, Powerblade booms and any other objects moving or stationary, examples: vehicles, trees, sign posts etc.

Always maintain awareness of how the position of the Powerblade booms may affect or be affected by others who may come into the working area. Always aim to keep safe working distances.

Always leave the Powerblade with the cutting head in a safe position in contact with the ground (see below).



Always be aware of your surroundings and operate accordingly. Be aware of confined areas and reduced heights. Bear in mind adverse weather conditions, such as snow, ice, wind and rain.

Ensure always use the minimum reach necessary to make cut.

Take particular care on slopes.

Be aware that debris and other objects can be thrown. Extra care should be taken when working near highways, public footpaths, buildings, etc.

Do not reach into the machine whilst it is running.

For transportation, fold the booms onto the pads provided. Ensure that the head is as close to the tractor as is practicable without contacting the tractor when stationary or moving (see section 7.4)

Always replace all guards after making any adjustments or lubricating the machine. Replace or repair any damaged or missing guards immediately.

Keep hands away from moving parts i.e. cutting head rotor, booms, and linkage. Do not reach into the Cutting head or any area where components maybe moving due to a risk of entanglement.

Keep a safe distance away from the Cutting head assembly as there is a risk of impact / crushing.

If the Cutting head nose deflector requires adjustment, firstly stop the rotor, and position the booms and cutting head into a safe position for work to be carried out (see section 8.10). Follow the 'SAFE STOP' procedure before proceeding to leave the tractor seat. Ensuring the rotor has stopped rotating before you approach the machine.

Ensure to clear up any debris left in the working area as this maybe a hazard and cause danger to others.

Check for loose, broken or missing flails every 4 hours.

Keep children away from the Powerblade trimmer and tractor at all times.

Only operate the tractor or machine controls from the tractor seat. Do not do so if anyone is anywhere near the machine.

If the PTO is run quickly when oil is very cold the thick oil will be difficult for the pumps to suck in, causing cavitation. Damaging pressures can also be generated in oil cooler.

Be aware that the rotor will take a considerable time to stop. Do not leave the tractor seat until it has stopped.

## **2.8 ACCIDENT PREVENTION WHEN REMOVING A FOREIGN OBJECT/BLOCKAGE**

Ensure that the machine is lowered to the ground or supported in such a way that hydraulic or mechanical failure cannot injure any personnel. Position the Cutting head in contact with the ground but vertically upright so the rotor can be accessed (see section 7.12).

Ensure the Cutting head flail rotor control and tractor PTO has been disengaged.

Follow the 'SAFE STOP' procedure before proceeding to leave the tractor seat.

Ensure the Cutting head flail rotor has stopped rotating before you approach the machine.

It is recommended to use PPE (Personnel Protective Equipment), when removing the blockage or foreign object.

Never attempt to work with the Cutting head in mid-air or directly overhead.

Ensure not to trap or entangle your fingers, hands, arms or any other body part if mechanically adjusting the roller or front nose to help clear the blockage.

If adjusting the roller hydraulically (hydraulic roller option machines) ensure there is no one in the vicinity of the Cutting head while the roller is being lowered or lifted via the hydraulic service. Ensure the machine is returned to a safe supported position before continuing unblocking the foreign object. Follow the 'SAFE STOP' procedure before proceeding to leave the tractor seat.

The offending object may be heavy, approach moving the object from the machine with care, if in doubt use lifting apparatus.

The offending object may be sharp, approach moving the object from the machine with caution.

Ensure not to trap or entangle your fingers, hands, arms or any other body part as the flail rotor may be preloaded by the foreign object or build up of material within the cutting head.

Ensure to avoid sharp edges of the flails as these may cause cuts or lacerations.

Ensure not to trap or entangle your fingers or hands with the flails as they may move freely or unexpectedly within the Cutting head.

Ensure the machine is positioned in a safe area when removing the blockage or foreign object.

## **2.9 ACCIDENT PREVENTION WHEN LEAVING THE MACHINE**

Always park the machine on a level and firm site.

If leaving, detached from tractor ensure the parking stands are securely locked / lowered into position. Do not leave the machine where it might be knocked over by animals or vehicles.

If leaving attached to tractor ensure to lower the Flail head into a safe position in contact with the ground, follow the 'SAFE STOP' procedure and isolate electrics before leaving the cab. If being left unattended lock tractors cab.

Ensure the Powerblade is stable on level ground when free standing without being attached to a tractor (see section 5).

Do not leave the machine adjacent to a building, hay stack or the like, where persons could climb and fall onto the machine.

If detaching the machine ensure the lift cylinder locking taps are locked, slew locking device is in place and the Cutting head correctly supported under the head pivot (see section 5).

Ensure roller is always positioned in the upper most position.

Never allow children to play on or near parked machinery.

## **2.10 ACCIDENT PREVENTION WHEN SERVICING / ADJUSTING THE MACHINE**

Any malfunctions or defects, which might affect the safe operation of the Powerblade, must be immediately eliminated.

Do not check or adjust the machine whilst the PTO shaft is engaged by the tractor. Follow the 'safe stop' procedure before leaving the tractor cab. Never leave the tractor seat while the engine or machine is still running.

If the Powerblade is connected to a tractor while servicing follow the 'safe stop' procedure before leaving the tractor cab to work on the machine, ensure the tractors handbrake is applied and the transmission is placed in park.

The Powerblade must be used, maintained and repaired only by persons who are familiar with its working and have been made fully conversant with the risks involved.

Do not carry out any work without appropriate PPE (Personnel Protective Equipment) and long hair tied back. (Gloves, safety boots, close fitting clothing etc.)

Do not climb on machine to access grease points (or any component) as parts of the machine will be extremely slippery. Always use suitable ladders or steps.

While working on the machine avoid overreaching yourself and consider the consequences of the spanner slipping, or the fastener suddenly breaking or coming loose. If the result is likely to involve a fall, or the removal of flesh from your knuckles, then reconsider your approach.

Ensure that the machine is lowered to the ground or supported in such a way that hydraulic or mechanical failure cannot injure any personnel.

Be aware that the Cutting head rotor will overrun for a short time after the controls or PTO has been disengaged.

Replace all guards after servicing.

Ensure to tighten all nuts and bolts to the correct torque (see section 8).

Always dispose of discarded parts carefully – at an approved site.

When removing a build-up of foreign material such as plastic, baling twine, wire from the flail rotor, firstly follow the 'safe stop' procedure. Pay particular caution while working and the rotor may move suddenly as the material becomes unblocked.

Never work underneath or next to the machine unless the Powerblade is perfectly stable and supported.

Beware not to contact skin with grease when greasing machine. Always use appropriate PPE.

Hydraulic systems using accumulators can cause injury and loss of oil if not de pressurised before servicing. Follow procedure to de pressurise in section 8.8.

Ensure the safe disposal of any waste oil and filters.

OEM replacement parts and accessories from Shelbourne Reynolds have been specially designed for use with the Shelbourne Reynolds, Powerblade trimmer. Any replacement parts and accessories not supplied by Shelbourne Reynolds have not been tested and approved by us. The installation and/or the use of non-Shelbourne Reynolds products may under certain circumstances have a negative influence on the given design features of your Powerblade trimmer and may therefore adversely affect it's safe and reliable operation and your safety. Shelbourne Reynolds cannot therefore be held liable for damage or injury caused by the use of non-OEM replacement parts or accessories.

Allow the machine to stop before adjusting the belts.

Ensure to avoid sharp edges of the flails as these may cause cuts or lacerations.

Ensure positioned in a safe area when servicing or adjusting the machine.

Ensure hydraulic oil tank lid is secured correctly when changing oil or filter.

Ensure flail rotor and the flails are in a restrained position when sharpening the flail cutting edge.

Avoid fingers or hands becoming pinched or trapped when replacing the drive belts.

## 2.11 ACCIDENT PREVENTION WHEN TAKING ON PUBLIC ROADS

Road traffic regulations must be observed when using or transporting the Powerblade trimmer on roads, paths and other public places.

The machine must be in a roadworthy condition.

Observe the maximum permissible width and heights for road transport and fit all necessary rear lights, fit flashing beacons, warning signs and guards. Switch off the lights and indicators before connecting.

Ensure that the lighting system is in full working order and that the vehicle carrying the Powerblade trimmer can fully and correctly operate it.

For transporting, close the booms fully and secure all rubber flaps, guards and covers so that they cannot cause injury or damage to other users of the public place.

Ensure the Powerblade booms cannot contact the tractor cab when positioning the Powerblade trimmer for road transport (see section 7).

Ensure the booms are fully slewed back and the slew locking device has been fitted before travelling on the public highway (see section 7).

Ensure the flail rotor is positioned facing the operator with top face of the Cutting head facing the traffic.



It is recommended to disconnect all electrical, hydraulic connections and the PTO driveshaft from the Powerblade so that it cannot be inadvertently operated during road transport.

Ensure lift cylinder is locked using the two taps located on the main lift cylinder (see section 7)

Ensure the rear road lights are free of debris and are clearly visible.

Observe the maximum permissible axle loads, the load bearing capacity of the tyres and the maximum total weights in order to ensure adequate steering and braking. Attached implements also influence the behaviour of the tractor. Take the width and the overhung weight into consideration, especially on sharp bends.

No person may be allowed to ride on the Powerblade trimmer.

Always adjust the driving speed to suit the driving conditions. Avoid fast turning when driving uphill, downhill or across a slope. Braking performance and turning ability will be affected when implements are connected to the tractor.

Be aware of the width, height and length of the machinery you are operating – Especially when transporting on the public highway or near obstructions.

When intending to operate on the highway consult the local Highways Department regarding notifications and approval, as rules and regulations will vary from area to area.

Ensure when working on the public highways consideration should be paid to others in the vicinity. Stop the machine immediately when vehicles, pedestrians, cyclists, or horse riders etc pass. Re-engage the machine only once working area is clear.

Always maintain awareness of how the position of the Powerblade booms may affect or be affected by others who may come into the working area. Always aim to keep safe distances from others or other objects.

Consider what measures you will need to control the risk to other road users (vehicles, cyclist, pedestrians or horse riders). Ensure to display specific warning signs in defined locations where work is being carried out.

Ensure no debris if left on the public highway or pathways.

## **2.12 ACCIDENT PREVENTION WHEN CLEANING AND STORING THE MACHINE**

Park the machine on a firm and level site

When unhooking the Powerblade, ensure the machine is supported in a stable position before moving the tractor away.

Do not leave the machine adjacent to a building, hay stack or the like, where persons could climb onto the machine and make it unstable.

Store the PTO shaft by removing from the gearbox, then leave with the Powerblade trimmer. Do not use the PTO guard restraining chains to hang or hold the weight of the PTO.

Ensure to fit the slew locking device (see section 7).

Ensure the electric controls are stored inside the tractor cab or in a clean dry location away from the elements.

Do not run the machine while cleaning.

If cleaning machine using a steam cleaner or pressure washer, follow recommended precautions given by the washing equipment manufacturer.

It is recommended to use PPE (Personnel Protective Equipment), when using high pressurised water, hot water or air during cleaning of the machine.

Do not climb on or over parked / stored machine, due to a high risk of falling in or off.

Even when the machine is unattached, certain components can be moved or rotated by hand, causing injury to fingers or hands due to trapping. Wherever possible secure components during storage to prevent accidental injuries

### 2.13 NOISE EMISSIONS

Sound pressure level measured at operator's seat in tractor cab.	Just tractor running. (full operating speed)	Tractor window closed.	62 dB(A)
		Tractor window open.	75 dB(A)
	Tractor and Powerblade running. (full operating speed)	Tractor window closed.	66 dB(A)
		Tractor window open.	90 dB(A)

Sound pressure levels measured all around the tractor and Powerblade at a distance away of 1 metre and a height of 1.6 metres, ranged from 92 - 98 dB(A).  
(The above test results were obtained using a randomly selected / modern tractor)

If the windows of the tractor are open while operating, it is recommended that personnel hearing protectors are used due to the noise levels involved.  
The control of noise at work regulations 2005 state 85 decibels and above before hearing protectors are required.

### 2.14 PROPER USE

Shelbourne Reynolds Powerblade trimmers are based on state-of-the-art technology and are manufactured in accordance with recognised safety requirements.  
Nevertheless the use of the machine does not preclude the risk of injury to the user or third parties and/or the risk of damage to the machine itself or to other materials or items of equipment.

Always make sure that the Powerblade trimmer is in a technically perfect condition and that it is used properly and for its intended purpose and entirely in accordance with the instructions given in this manual. Any malfunctions or defects, which might affect the safe operation of the machine, must be immediately eliminated.

The Powerblade trimmer must be used, maintained and repaired only by persons who are familiar with its working and have been made fully conversant with the risks involved.

OEM replacement parts and accessories from Shelbourne Reynolds have been specially designed for use with the Shelbourne Reynolds Powerblade trimmer. Any replacement parts and accessories not supplied by Shelbourne Reynolds have not been tested and approved by us. The installation and/or the use of non-Shelbourne Reynolds products may under certain circumstances have a negative influence on the given design features of your machine and may therefore adversely affect its safe and reliable operation and your safety. Shelbourne Reynolds cannot therefore be held liable for damage or injury caused by the use of non-OEM replacement parts or accessories. The Shelbourne Reynolds Powerblade trimmer is intended for cutting hedges and verges. Any uses other than those for which the machine is intended, such as craning, or stump-grinding, will automatically exempt Shelbourne Reynolds or the supplier from its/his liability in respect of ensuing damage. Such cases of improper use will therefore be entirely at the user's own risk.

All relevant accident prevention regulations, as well as other generally acknowledged health and safety regulations and road traffic regulations must be strictly observed.

Improper use also comprises failure to observe the instructions given in this operating manual and the manufacturer's maintenance and servicing requirements.

## **2.15 NO LIABILITY FOR CONSEQUENTIAL DAMAGE**

Even though your Shelbourne Reynolds Powerblade trimmer has been manufactured with the utmost care and you are using it properly, fluctuations and interruptions in operation rate may still occur.

It is the duty of the operator/user to ensure that foreign objects, e.g. stones, metal objects etc. are not allowed to enter the cutting head and are therefore not ejected dangerously. Failure to observe this may result in damage to the Powerblade trimmer and/or injury to the operator/user and members of the public.

Any claims for damages not directly incurred by the Powerblade trimmer cannot be accepted. By the same token, Shelbourne Reynolds cannot be held liable for any consequential damage resulting from incorrect use of the machine.

## SECTION 3:

## SPECIFICATION AND DESCRIPTION

### 3.1 DESCRIPTION

The machine consists of a cutting head, which is positioned by a number of articulating booms, mounted to a frame, which carries the relevant control and drive systems.

A double-skinned head shell (A) with a rotor (B) is fitted with a choice of cutting flails. This is driven by a hydraulic motor (C) mounted within the envelope of the head. An adjustable nose (D) is fitted to minimise the effect of any thrown objects. A hydraulic cylinder (E) rotates the head about the outer boom arm (F). The outer boom is fixed or telescopic. A hydraulic cylinder (G) varies the reach of the booms in an almost straight line due to the effect of the parallel arm (H). The first boom (I) is fitted with a pad (J) to close the booms together for safe, controlled, transportation. A hydraulic cylinder (K) rotates the rocker (L) and thus lifts and lowers the head and booms. A hydraulic cylinder (M) rotates the pillar (N) to give forward and rearward slew and a safety breakback action. Gearboxes, pumps and controls (O) use a fully independent (twin pump) oil supply from the large hydraulic tank (P) to operate the aforementioned cylinders and motor, which are protected from contamination by a return filter (Q). A guard (R) covers and helps to protect the hydraulic components.



A fully independent PTO operating at 540 rpm, with a 1 & 3/8" SAE 6 spline shaft and rotating in a clockwise direction is required.

All 600 trimmers are fully independent hydraulic machines.

### 3.2 INTENDED USE

The machine's intended to be used on typical farms and highways for annual or biennial cutting of hedges, for cutting grass and weeds on verges and banks.

Fine cutting action of the flails reduces the need for clearing up after cutting (though may not remove it altogether) and (unless the growth is particularly luxuriant) leaves no swath that might kill underlying grass.

### 3.3 TECHNICAL SPECIFICATIONS

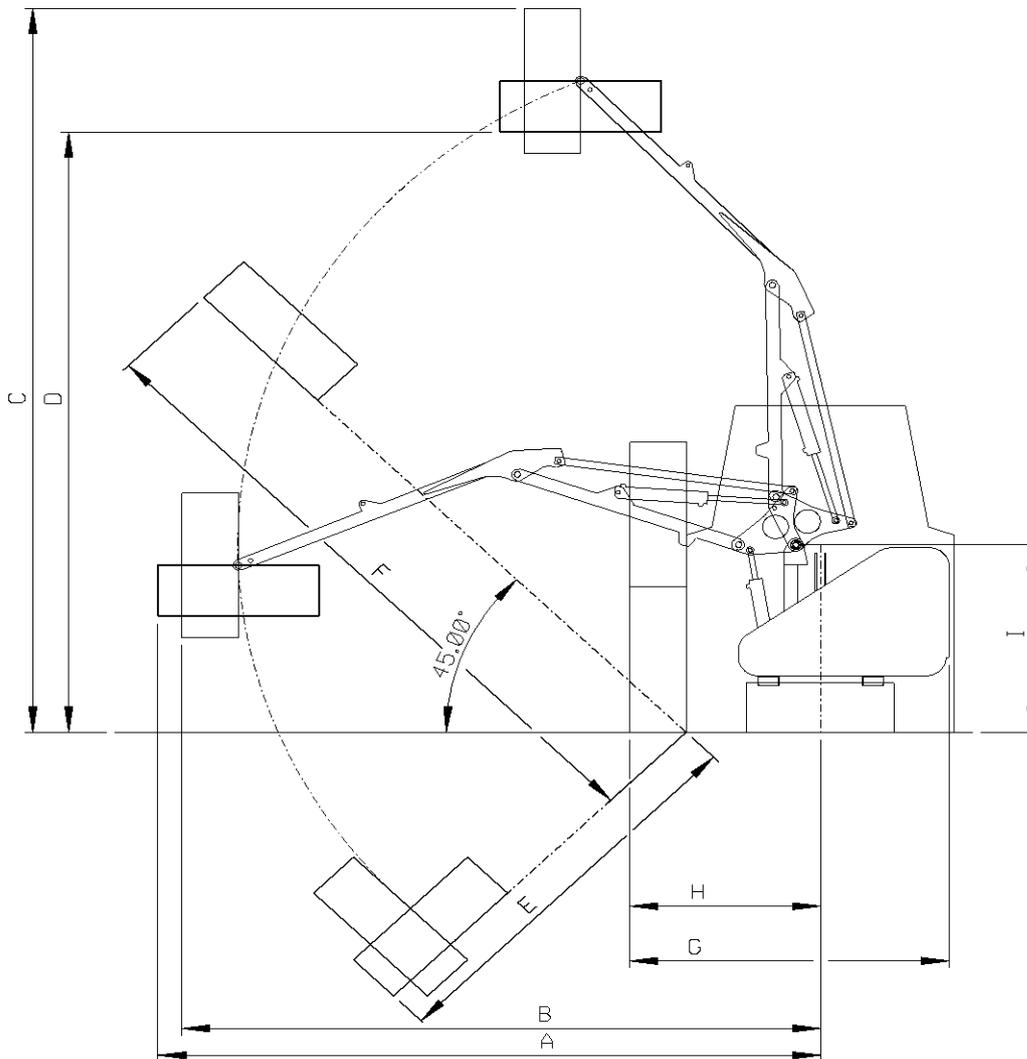
The terms "right", "left", "front" and "back" in this manual are for an operator sitting in the tractor seat looking forward.

Left hand build trimmer in work position.



<b>Technical Specifications</b>	<b>656</b>	<b>660T</b>
<b>Controls</b>		
<b>Progressive Cable Control</b>	Standard	Standard
<b>Proportional Joystick Control</b>	Optional	Optional
<b>Hydraulics</b>		
<b>Oil Capacity</b>	230 litres	230 litres
<b>Independent Hydraulics</b>	Standard	Standard
<b>Oil Cooler</b>	Optional	Optional
<b>Arm Features</b>		
<b>Parallel Boom Geometry</b>	Standard	Standard
<b>Boom Type</b>	Fixed	Fixed
<b>Hydraulic Slew</b>	90deg	90deg
<b>Arm Break Back</b>	Standard	Standard
<b>Head Float</b>	Standard	Standard
<b>Arm Float</b>	Optional	Optional
<b>Flailhead Features</b>		
<b>Twin 'v' Belt Head System</b>	Standard	Standard
<b>1.2m Head</b>	Standard	Standard
<b>1.5m Head</b>	Optional	Optional
<b>Drive System Flow</b>	100 l/min	100 l/min
<b>Drive System Pressure</b>	250 bar	250 bar
<b>Head Angling</b>	240deg	240deg
<b>Roller Diameter</b>	125mm	125mm
<b>Hydraulic Roller</b>	Optional	Optional
<b>Weights</b>		
<b>Machine Weight inc Head &amp; Oil</b>	1550kg	1650kg
<b>Min Tractor Weight</b>	3500kg	3500kg
<b>Min Tractor</b>	90HP	95HP
<b>Mounting System</b>		
<b>3pt Mounting</b>	Standard	Standard
<b>Axle Mounting</b>	Optional	Optional
<b>Accessories</b>		
<b>Road Lights</b>	Optional	Optional

REACH DIMENSIONS	656	660T	
		Retracted	Extended
Max reach (A) head horizontal	5.78mt	5mt	6.25mt
Max reach (B) head vertical	5.43mt	4.81mt	5.96mt
Max height (C) head vertical	6.48mt	6.17mt	7.04mt
Max height (D) head horizontal	5.63mt	5.01mt	5.87mt
Max reach (E) downwards	4.05mt	3.05mt	4.13mt
Max reach (F) at 45degree up	5.94mt	4.88mt	6.10mt
Min siding width (G) to tank	2.34mt	2.34mt	N/R
Min siding width (H) to centre	1.38mt	1.38mt	N/R
Height (I) to pivot	1.55mt	1.55mt	1.55mt
All dimensions above with 1.2mt head (RH) Inboard drive			

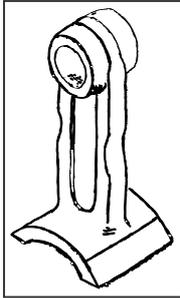


All dimensions weights and other data are approximate.

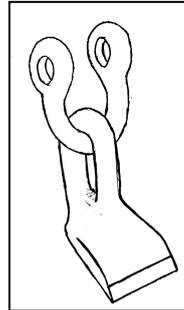
### 3.4 TECHNICAL SPECIFICATIONS OPTIONS

The 600 machines can only be assembled to work on the left hand side of the tractor.

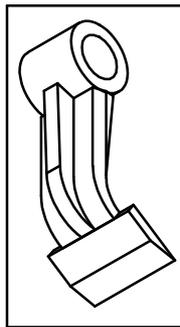
Cutting head choice of flails -



'T' flails, reversible  
(hedges and occasional  
grass)



Boot flail and shackle,  
up cutting only (grass  
and light to medium  
hedges)



Competition flail, up  
cutting only (grass and  
light to medium hedges)

Narrow lane bracket option is available for all 600 trimmers.





## SECTION 4:

## HANDLING AND TRANSPORTATION



Refer to section 2 for safety procedures.

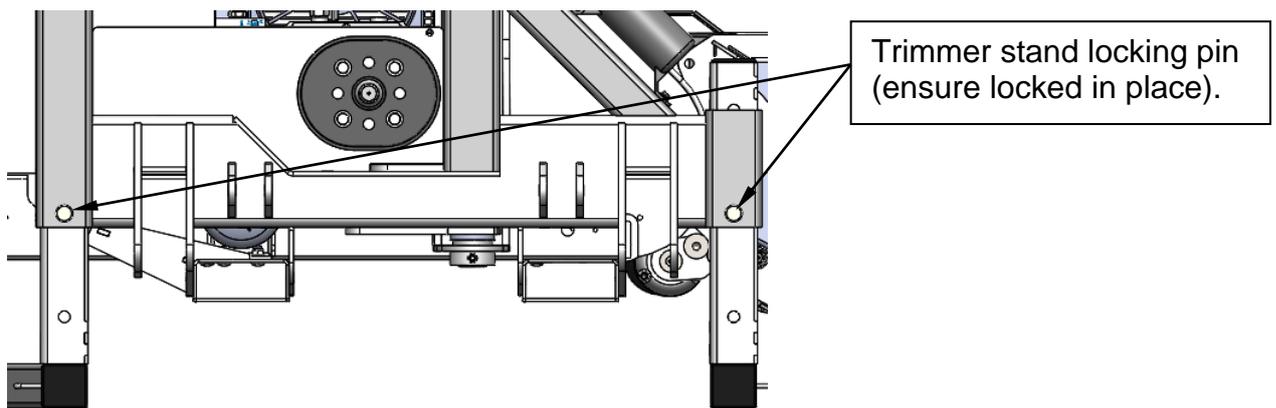
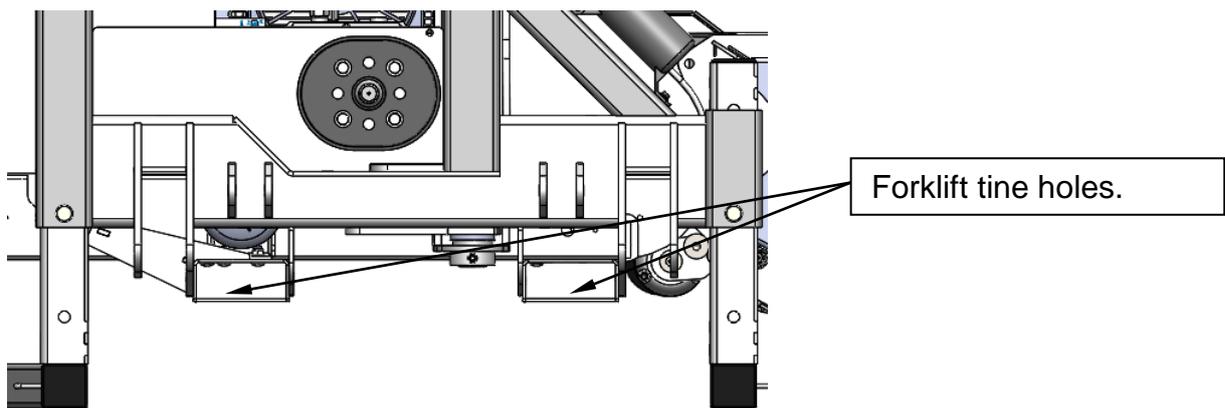
To prevent damage to the trimmer the machine should only be moved by one of the following methods.

### 4.1 UNLOADING/LOADING



Refer to section 2.3 for accident prevention before starting.

1. Use the forklift tine holes that are incorporated into the design of the Powerblade trimmer frame.



Insert the tines as far as they can go, to get the trimmer as close to the forklift as possible.

It is recommended that the head is parked as close to the rear of the trimmer to lessen overhanging weight and not exceed the forklift capacity.

Take care not to insert the tines through so far that the tips contact with the cutting head. This may cause damage to the cutting head or even cause the tines to slip during transportation of the Powerblade.

- By slinging and using an overhead lifting device, generally during loading and unloading. Attach slings or chains to the designated lifting / sling points.



Sling point on main pivot rocker.



Sling point on inner boom.

- Ensure lift cylinder taps are closed before lifting commences and slew locking device is fitted see section 7.1.

## 4.2 TRANSPORTATION



Refer to section 2.9 for accident prevention when leaving the machine.



Refer to section 2.11 for accident prevention when taking on public roads.

For transporting attached to a tractor, see section 7.4 for more detail and correct procedure's to follow.

When transporting the Powerblade ensure:

1. Ensure that the two taps on the lift cylinder are closed, handles are positioned 90 degrees to fittings, to lock cylinder movement (see section 7.4).
2. Ensure the slew locking device is also fitted to lock of any slew movement (see section 7.4).
3. Ensure Forklift has suitable capacity to lift trimmer.
4. Ensure when leaving the Powerblade in a new location, it's on a firm and level site and the cutting head is supported directly underneath the pivot shoe.



Pivot shoe

Cutting head supported under the pivot shoe.



## SECTION 5:

## PREPARATION FOR USE



Refer to section 2 for safety procedures.

Use the dealer pre-delivery/installation check and warranty registration form positioned at the front of this manual to check through the Powerblade trimmer. This section will help to expand on the pre-delivery/installation.

### 5.1 CHOICE OF TRACTOR



Refer to section 2.3 for accident prevention before starting.

Refer to Section 3 for the recommended weight of tractor and the typical horsepower requirement for the various machine configurations.

Before attaching the Powerblade trimmer it is important to ensure the tractor is suitable for the trimmer.



It may be required to either weight or ballast the tractor to obtain suitable stability. This should be done to the tractor manufactures recommendations.

The tractor size and weight should be substantial enough so that when the Powerblade trimmer is at its full extent in all conditions, the tractor remains completely stable and with all four wheels in full contact of the ground. Either in work or on the public highway a minimum of at least 15% of total vehicle weight of the tractor and trimmer should be carried on the front axle. At least 20% of the rear axle weight should be carried on the opposite wheel to the cutting head.

Ensure tractor axle weights and tyre ratings are not exceeded.

Ensure the combination of the tractor and trimmer does not exceed the gross vehicle weight.

Weights can be measured by driving the tractor and trimmer combination onto a weigh bridge ensuring a full tank of diesel, operator in position, any necessary front and wheel weights added prior to weighing.

Note: Not all manufacturer tractors of similar sizes have the same carrying / axle capacities, if in doubt check with your dealer.



Tractor wheels should be set as wide as required to obtain maximum sideways stability in all working conditions. However if a tractor width is between 2.55 – 3 meters speeds of more than 32 KPH (20 MPH) must not be exceeded when on the public highway

## 5.2 PREPARATION OF THE POWERBLADE BEFORE ATTACHMENT



Refer to section 2.3 for accident prevention before starting.

The Powerblade will be delivered to the dealer fully assembled, except for the stabiliser mounting system and final hydraulic, electrical and PTO connections.

Powerblade trimmer checks:

- Check in general that nuts & bolts are tight.
- Ensure that all safety guards, decals are fitted and legible.
- Check hydraulic oil level (see section 8.5).
- Check gearbox oil level (see section 8.3).
- Lubricate all accessible grease points (see section 8.1).

Powerblade trimmer cutting head checks:

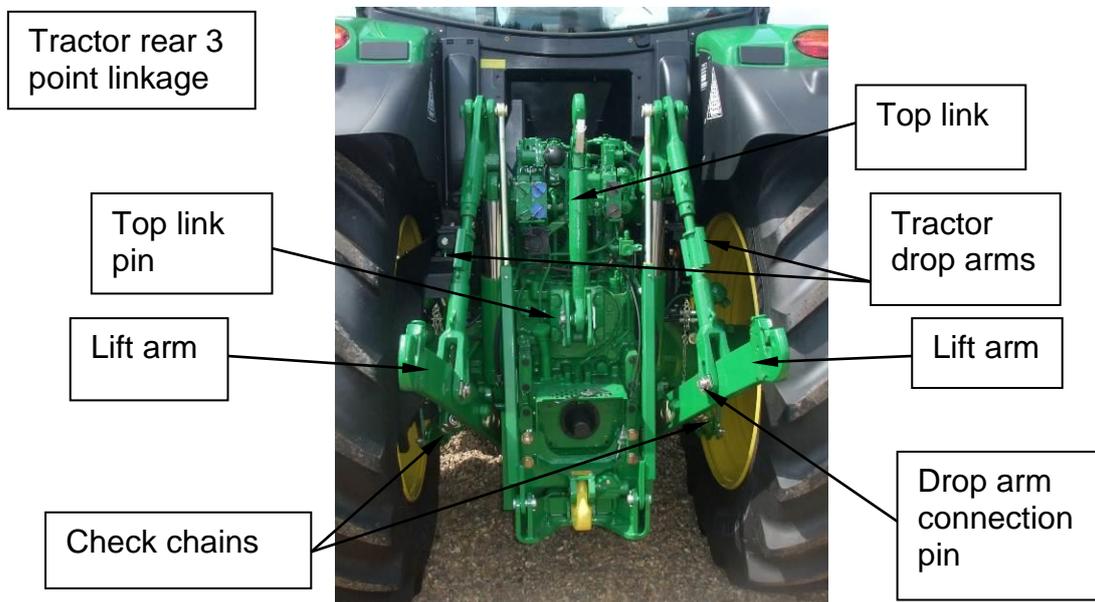
- Check all flails are intact and the flail bolts are tightened correctly (see section 8.10).
- Check drive belts are tensioned correctly (see section 8.10).
- Check that both safety curtains are fully intact.
- Check that the head nose can be adjusted fully up or down (see section 7.6).
- Ensure there are no foreign objects inside the head shell.

## 5.3 PREPARATION OF THE TRACTOR BEFORE ATTACHMENT



Refer to section 2.3 for accident prevention before starting.

The Powerblade trimmer is suitable for a Category 2 tractor linkage and in most instances Category 3. Shelbourne Reynolds Engineering Ltd recommends that this be of good quality and in good condition. Check the condition of any quick release ball ends carefully, as they will be subjected to upward forces. Check chains and stabilisers should also be in good condition when using the stabilising kit, as they will be relied upon to assist it in its function.



Ensure the tractor drop arms are of equal length ensuring they are kept at the minimum length required while still being able to hitch on the trimmer. Ensure the pin which connects the drop arm to the lift arm is positioned into the fixed rather than the float position (please refer to the tractor operators manual).

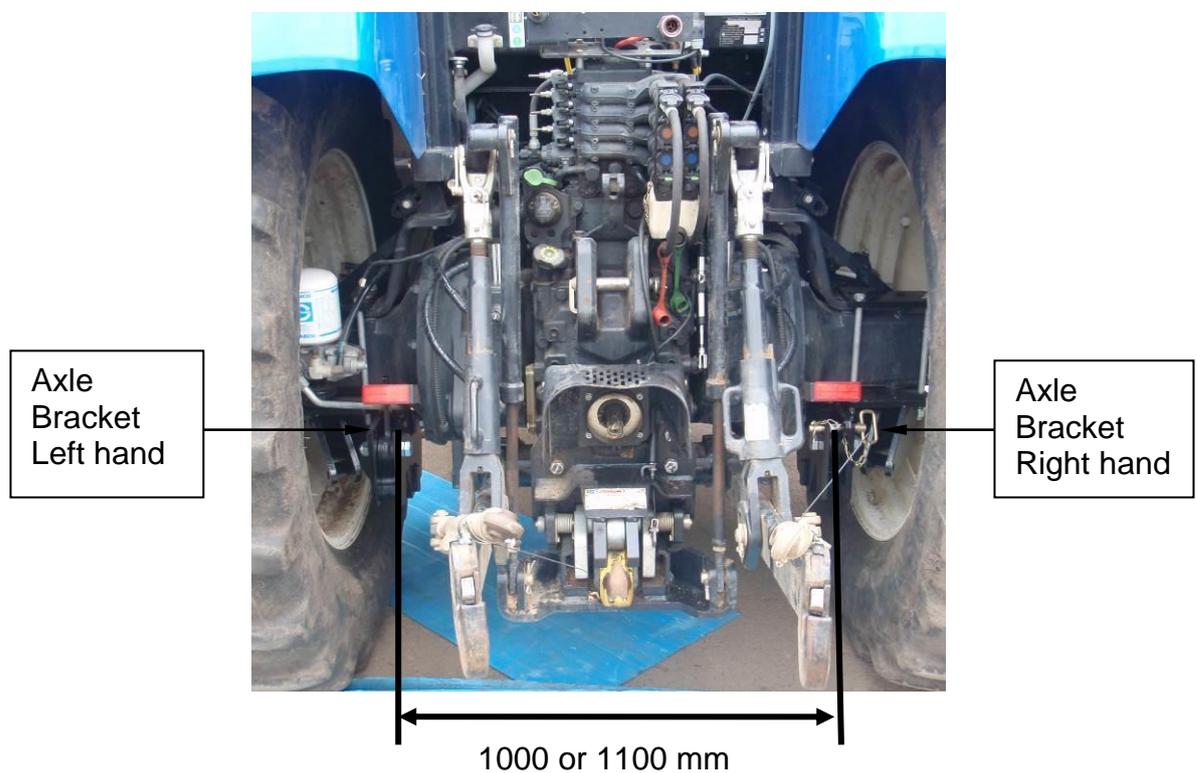
The cab safety guards should now be fitted. These must protect any screen, which will be in direct line of sight from the flail head in its various positions. This will include all the side windows on the work side, the rear screen and in some cases the windscreen. Guards can be purchased from Shelbourne Reynolds Engineering. Note it is essential that the cab is fitted with safety glass and that the relevant windows and doors remain closed when the Powerblade trimmer is in use.

Ensure all tractor mesh/polycarbonate guards are suitable for the job, undamaged and well maintained.

Ensure to have read the tractor operators manual thoroughly and practise using the tractor controls (especially those relating to the 3 point linkage) prior to starting to couple the machine.

If the Powerblade trimmer is specified with the axle frame option the tractor is required to be fitted with axle brackets. These may already be on the tractor so in this case compatibility should be checked with you dealer as different manufactures may supply different types of axle brackets which may only be suited for their brand of trimmer. If fitting another manufactures axle brackets ensure to follow their instructions on how to fit the axle brackets to the tractor.

Axle brackets to suit Shelbourne Reynolds Powerblade should be set at either 1000 or 1100 mm between centres. In fitting these brackets it may be required for the removal of the check chain bracket which in turn should be incorporated into the design of the axle bracket.



Shelbourne Reynolds axle brackets supplied will be accompanied by the axle bracket parts and operators manual (MAN-10104) which will include specific instructions on how to fit the axle brackets to specific tractors.

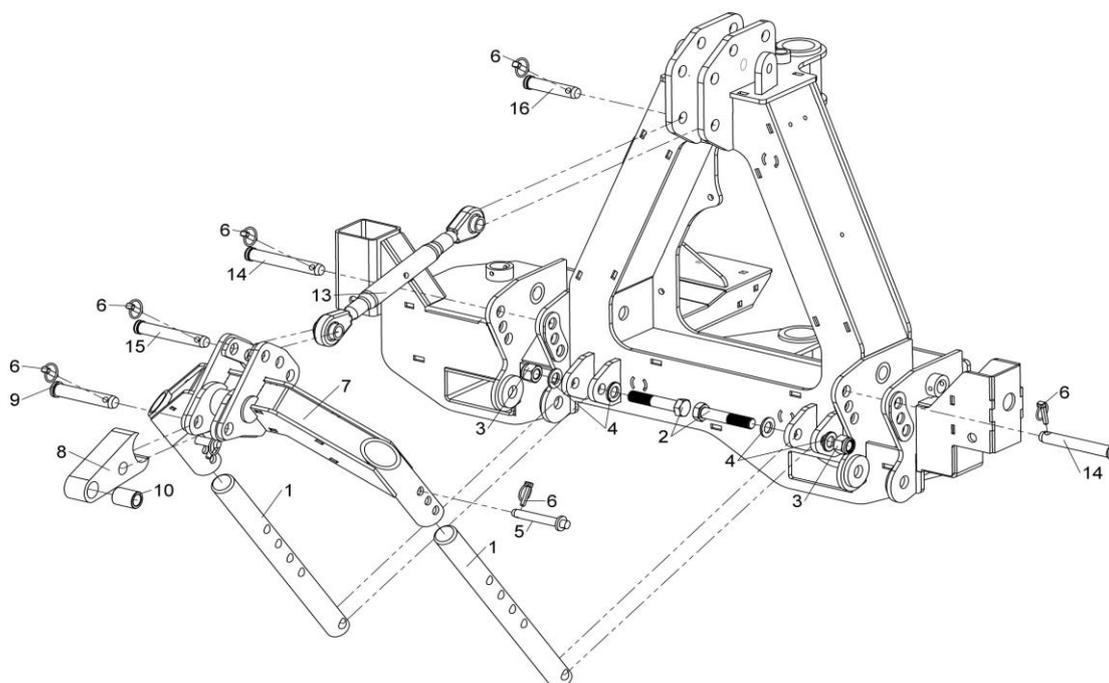
#### 5.4 FITMENT OF 3 POINT LINKAGE STABILISER TO THE POWERBLADE



Refer to section 2.4 for accident prevention when coupling and uncoupling to the tractor.

A stabilising system may be supplied to help to limit the rolling movement of the machine relative to the tractor.

See parts manual MAN – 10105, Kit-08237 for more details.



Ensure the machine is on a firm level site with plenty of room to conduct the fitting operation.

Fitment of the Three point linkage kit to the Powerblade trimmer.

Note: Throughout this section item numbers mentioned are related to the above drawing KIT-08237.

1. Connect both items 1 onto the trimmer using nuts and bolts (item 2, 3 & 4). Keep the nuts and bolts loose at this stage. Allow both items 1 to rest onto the ground.
2. Ensuring the right way round (three top link holes facing towards the trimmer frame) proceed to slide item 7 onto both of item 1. Check item 7 is free to slide fully up and down the two shafts.

3. Then position pin item 5 into the upper most hole of shaft item 1. Slide item 7 to rest up against item 5.

Item 7 rested up against item 5



4. Connect item 8 into the middle hole of the three holes in item 7 using pins item 14 & 6.
5. Using suitable lifting equipment lift the connected assembly up towards where the main frame top link pin multiple holes positions are. Connect the nose piece item 8 to the main frame using another pin item 14 & 6.



Nose piece (item 8)  
connected to main frame

6. Keep unused components for when attaching the Powerblade to the tractor. Note pin item 14 not required for 600 machines (HD800 only).

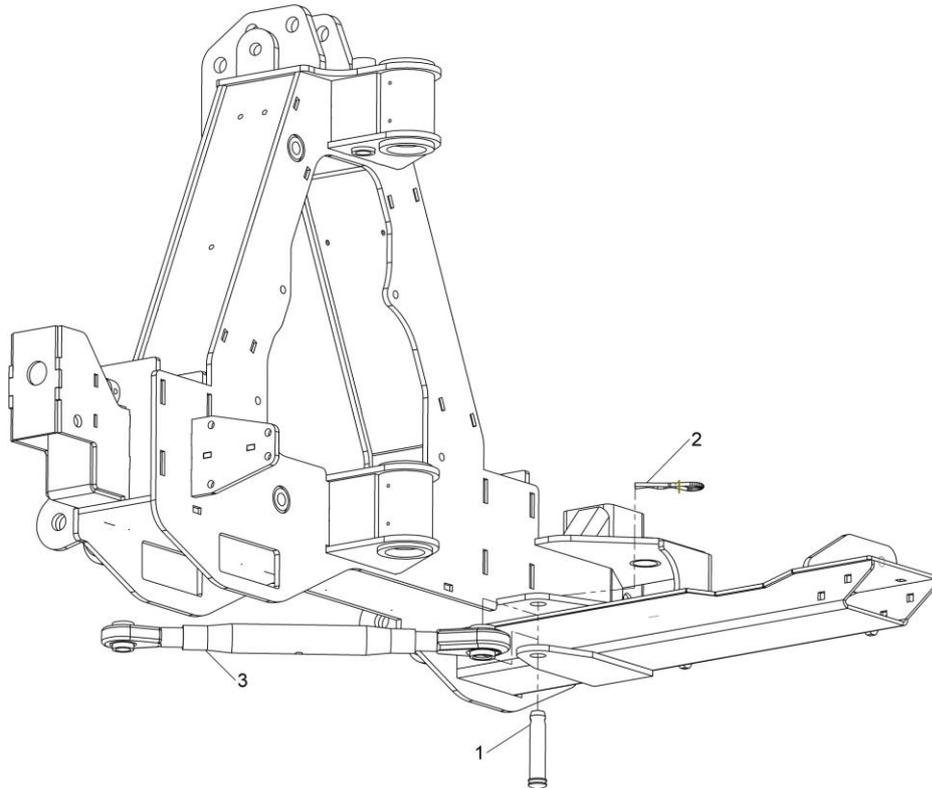
## 5.5 FITMENT OF DRAWBAR KIT TO THE POWERBLADE



Refer to section 2.4 for accident prevention when coupling and uncoupling to the tractor.

A drawbar kit can be used in conjunction with a 3 point linkage kit. This will help to limit the rolling movement of the machine relative to the tractor.

See parts manual MAN – 10105, Kit-08284 for more details.



- 1 Fit item 3 into the clevis incorporated within the trimmer main frame assembly using item 1 and 2. Ensure the smaller diameter end of the adjustable link is fitted into main frame.

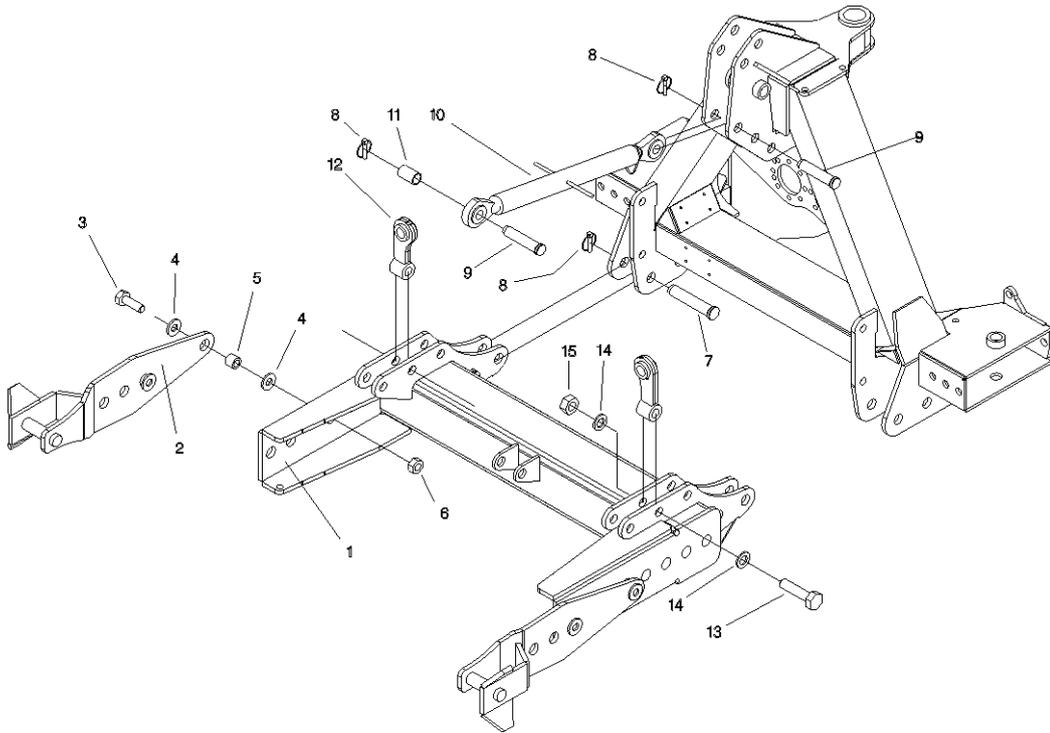
## 5.6 FITMENT OF THE AXLE FRAME STABILISER TO THE POWERBLADE



Refer to section 2.4 for accident prevention when coupling and uncoupling to the tractor.

As an option the machine can be supplied with stabiliser axle mounting kit and brackets to enable it to be latched to the tractor's rear axle. This is strongly recommended for all machines equipped with a 1.5m head. The system will not only reduce the stress on the tractor linkage but also makes the actual response of the head to the controls more predictable.

See parts manual MAN – 10105, Kit-08015 for more details.

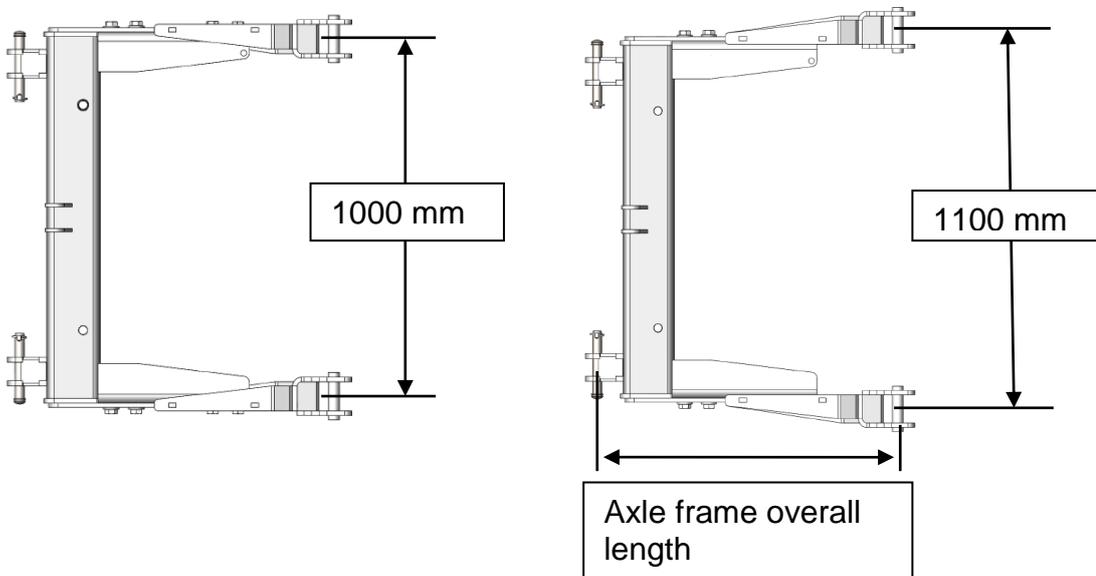


Ensure the machine is on a firm level site with plenty of room to conduct the fitting operation.

Fitment of the axle frame stabiliser kit to the Powerblade trimmer.

Note: Throughout this section item numbers mentioned are related to the above drawing KIT-08015.

1. The axle frame stabiliser which connects to the tractor can be set at two different widths. Both Pin arms (item 2) can be flipped over to give either 1000 or 1100 mm depending on which width the axle brackets attached onto the tractor axle have been set.

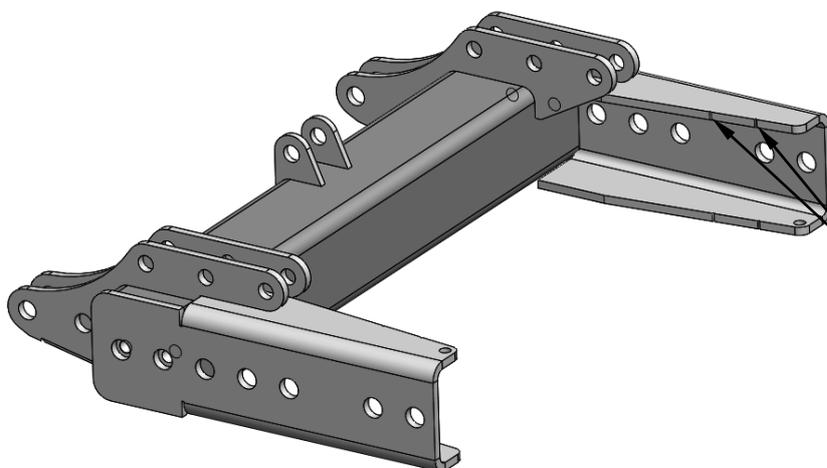


- Once the correct width has been identified it's important to work out the axle frames overall length required which will ultimately determine the distance between Powerblade and the tractor. Multiple holes in both item 1 and item 2 allow 70mm increments of the overall length of the axle frame assembly. The Powerblade should be as close as physically and practically possible to the rear of the tractor whilst maintaining sufficient gap that in all positions the Powerblade **DOES NOT** contact the tractor (e.g. tyre, mud guard etc...).



Distance maintained between tractor & Powerblade

- It's also possible to reduce the overall axle frame size further if required. This is done by cutting material off the hitch sub frame at the specified points.

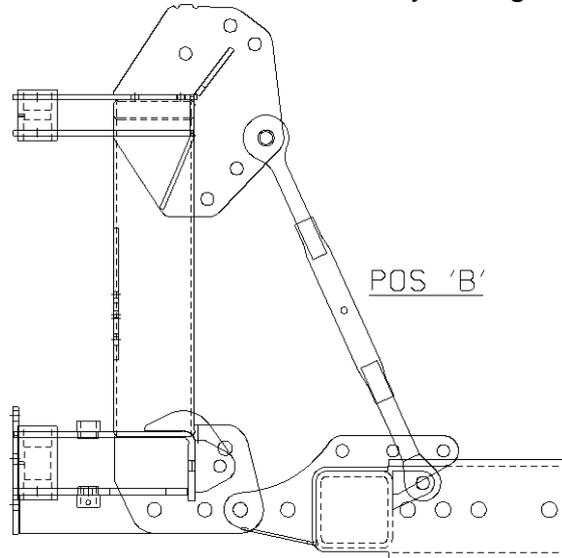


Cut off at marked notches 70mm & 140mm from edge each end

- With the correct width and overall length identified assemble items 2 together with item 1 using items 3, 4, 5 and 6.
- Fit the drop links items 12 using items 13, 14 and 15 into the middle of the three holes. The other two holes maybe required if the tractor drop arm cannot be connected due to the angle. Check the drop links fit the tractor

drop arms as these are tractors specific (When ordering KIT-08015 supply tractor make and model).

6. Using appropriate lifting equipment connect the assembled axle frame to the Powerblade frame using pins 7 & 8.
7. Then connect the top link (item 10) into position 'B' between the trimmer main frame and the axle frame assembly. Using fixings 8, 9 and 11.



8. The axle frame is now assembled and ready for the tractor to be attached. It's also possible to attach the axle frame assembly to the tractor before then attaching to the Powerblade.



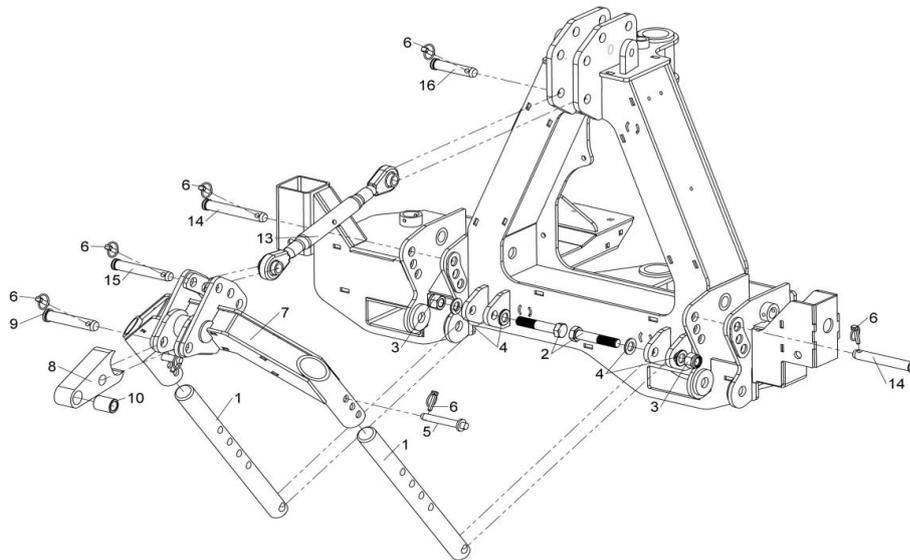
9. Follow the previous procedure up until step 5. Then using suitable lifting equipment connect the axle frame into the axle brackets as picture above.
10. Disconnect the drop arms from the tractor lift arms. Either disconnect or secure the lift arms away.
11. Connect the drop links item 12 to the drop arms from the tractor. Ensure drop arms are equal length prior to connecting. Ensure the drop arm connecting pin is positioned in the fixed, not float, position (refer to tractor operators manual).

## 5.7 ATTACHMENT – 3 POINT LINKAGE STABILISER, TRACTOR TO POWERBLADE

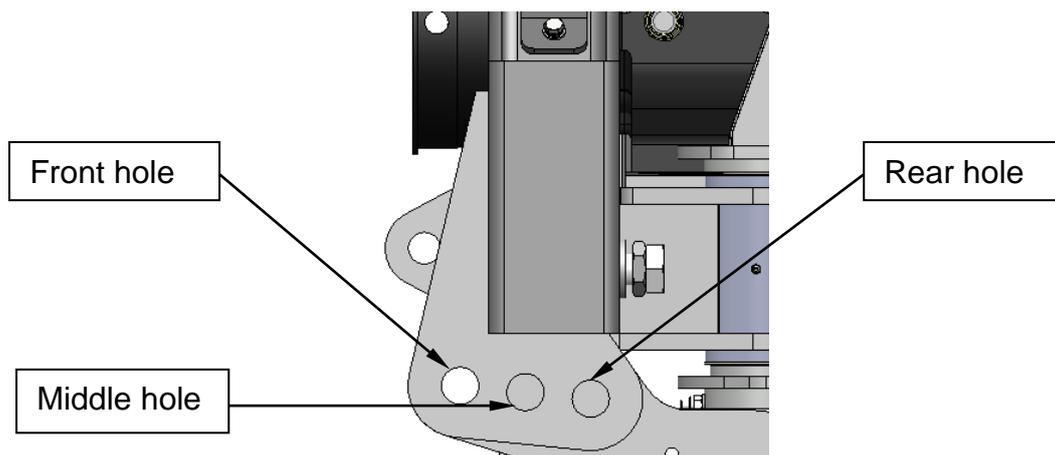


Refer to section 2.4 for accident prevention when coupling and uncoupling to the tractor.

Throughout this section item numbers mentioned are related to the below drawing of KIT-08237. See parts manual MAN – 10105, Kit-08237 for more details.

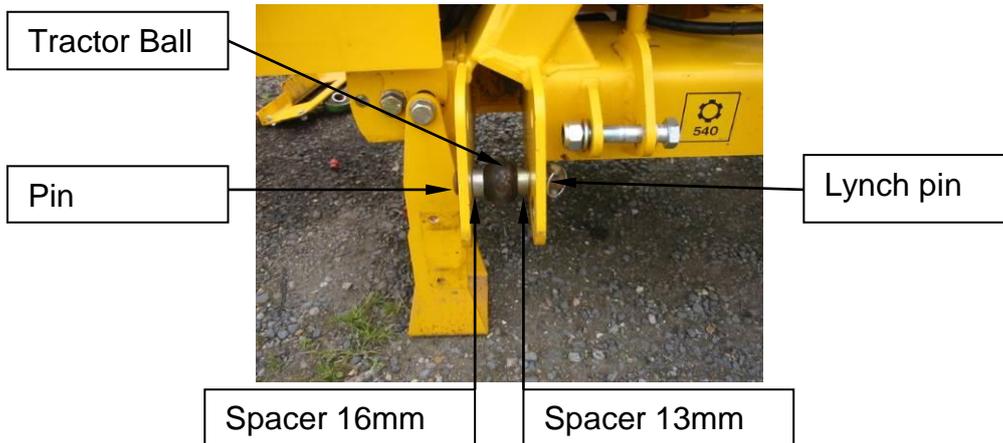


1. Identify if the tractor has lift arms with fixed ball ends or has a quick release ball end style. For Lift arms with the fixed ball ends prepare the pin, lynch pin and spacers
2. Identify which hole on the trimmer frame which will best suit the tractor and machine combination. The machine should be as close as physically and practically possible to the rear of the tractor whilst maintaining sufficient gap that in all positions the machine **DOES NOT** contact the tractor (e.g. tyre, mud guard etc...), as shown previously. Positioning the connection pin into the front hole will provide a greater gap between the tractor and machine. Positioning the connection pin into the rear hole will provide a closer gap between the tractor and machine.



Note: Some tractor lift arms may not be compatible to use the rear hole if the crank within the lift arm is too great.

- For lift arms of the quick release ball end type fit the tractor balls to both sides of trimmer frame and add spacers for sideways movement as shown below.



- The tractor should then be carefully reversed slowly towards the machine, to attach the tractor lift arms onto the trimmer frame. Allowing either fixed ball end lift arms to enter the frames clevis and pin, to correctly align or quick release lift arms to align and travel under balls. Raise quick release arms slightly until they lock onto balls. Perform a 'Safe stop' procedure before dismounting from the tractor. Ensure the lift arms are locked onto balls, or pins can be inserted through fixed ends.
- Remove the tractor top link from the tractor but ensure to keep the top link pin and lynch pin close to hand.
- Support the weight of the 3 point yoke. Remove the Rocker from between the 3 point yoke and the trimmer frame. Re-position the rocker into the front of the 3 point yoke using pin, lynch pin items 9 and 6. The rocker has two positions and can be turned over to bring the frame back or up to avoid parts of the tractor.



Note: A longer rocker is also available to order from SRE parts part number: 806071 01 if the tractor is not compatible with the standard fitment.

- Check the outside diameter of the tractor top link pin in relation to the internal rocker diameter to ensure a good sliding fit. Use spacers provided items 10, 11 and 12 to reduce the amount of gap between the outside diameter of the top link pin to the internal diameter of the rocker.



Ensure rocker item 8 and spacers items 10, 11 and 12 are in good condition. If either part is worn or irregular in shape it should be replaced immediately. These parts should be checked after 8 hours use, then checked and repeated as required periodically thereafter.

8. Connect the rocker and 3 point yoke assembly into the top link clevis of the tractor.

Rocker to tractor connection



9. Fit the top link (item 13) between the trimmer main frame and the 3 point yoke using the pins and lynch pins provided. Ideally maintain a straight line through the pivot points once in the raised position.

Top link Item 13

3 point yoke

Pin items 5

3 point shaft

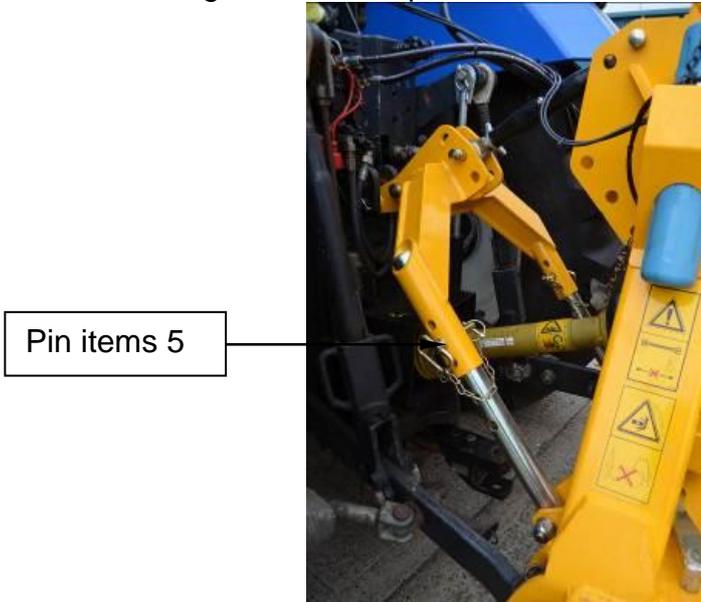


All pivots inline

Nuts & bolts Items 2, 3 & 4.

10. Ensure the tractor check chains are free to float at this stage.
11. Ensure pins items 5 are removed then slowly raise the 3 point linkage of the tractor to the required height for carrying the machine. Ideally the tractor PTO and the gearbox shaft should be at the same level. When lifting the 3 point shafts (items 1) will be sliding through the 3 point yoke (item 7).

12. Lengthen or shorten the top link so that on level ground the trimmer frame is vertical. This will also affect the angle of the cutting head in relation to the ground.
13. Lift or lower the tractor 3 point linkage to align the holes between the 3 point yoke and the 3 point shaft. Insert pin (item 5) and secure using the lynch pin as shown below. Ensure as much overlap as possible between the 3 point yoke and 3 point shafts. With pins (item 5) installed lower the 3 point linkage to take the trimmer weight onto the 3 point stabiliser.



 Serious damage may occur if the tractor 3 point linkage is raised without removing 3 point linkage locking pins (item 5).

14. Fully tighten the nuts and bolts items 2, 3 and 4 holding the 3 point shafts.
15. Lock the tractor check chains with the machine positioned centrally to the tractor ensuring to adjust them so that there is no sideways sway.
16. Then shorten the tractor left hand drop arm or lengthen the right hand drop arm as much as possible so that the Powerblade is parallel to the tractor axle. This will remove the accumulation of clearances within the tractor rear linkage once the Powerblade is boomed out to the side. This would be the opposite way round on right hand build trimmers.



17. Point 15 and 16 should be repeated once the trimmer is fully operational. In some cases it's also required to place the head horizontal to the ground, close to the tractor tyre in the work position power the booms into the ground. This may then allow further adjustment to the tractor check chains and drop arms if required.



18. Correct adjustment has been reached when with the booms in the work position the machine remains parallel to the rear axle of the tractor. Take tyre squash into account when viewing this.



Ensure the check chains are tight.



This procedure should only be carried out by a single person. Extra care must be taken throughout the procedure as high risk is involved.



Points 15, to 18 should be checked after 4 hours use, then checked and as repeated required periodically thereafter.

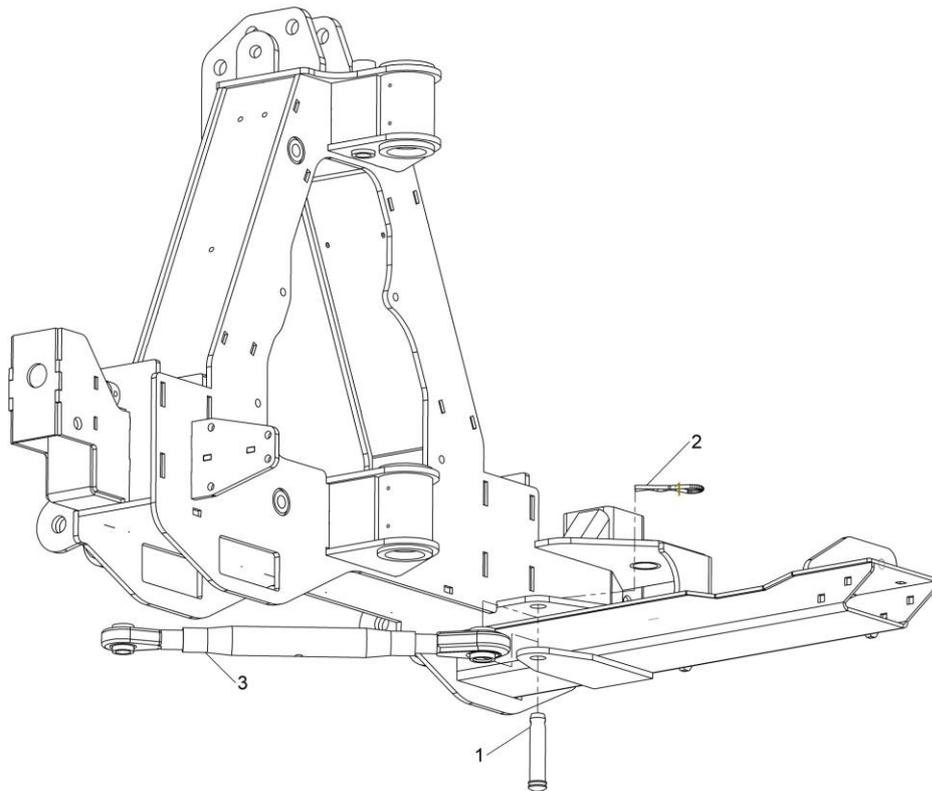
Stability between the tractor and machine in all positions is of the upper most importance to ensure the safety to the operator and any other person or persons who may come into the contact area. If the stability of the unit is questionable then any operation should be ceased with immediate effect. Contact you dealer immediately.

## 5.8 ATTACHMENT – DRAWBAR KIT, TRACTOR TO POWERBLADE



Refer to section 2.4 for accident prevention when coupling and uncoupling to the tractor.

See parts manual MAN – 10105, Kit-08284 for more details.



- 1 Connect the larger diameter end of the adjustable link into the tractor drawbar clevis using the tractor drawbar pin.



- 2 Once connected decrease the adjustable link length as much as possible. In some cases it's also required to place the head horizontal to the ground, close to the tractor tyre in the work position power the booms into the ground. This may then allow further adjustment if required.

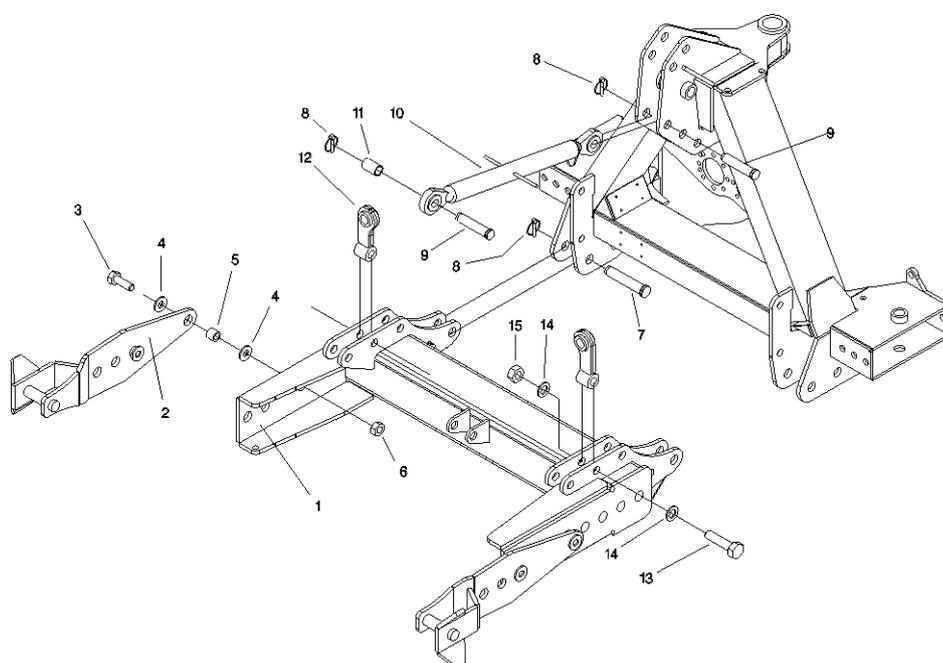


## 5.9 ATTACHMENT – AXLE FRAME STABILISER, TRACTOR TO POWERBLADE



Refer to section 2.4 for accident prevention when coupling and uncoupling to the tractor.

See parts manual MAN – 10105, Kit-08015 for more details.

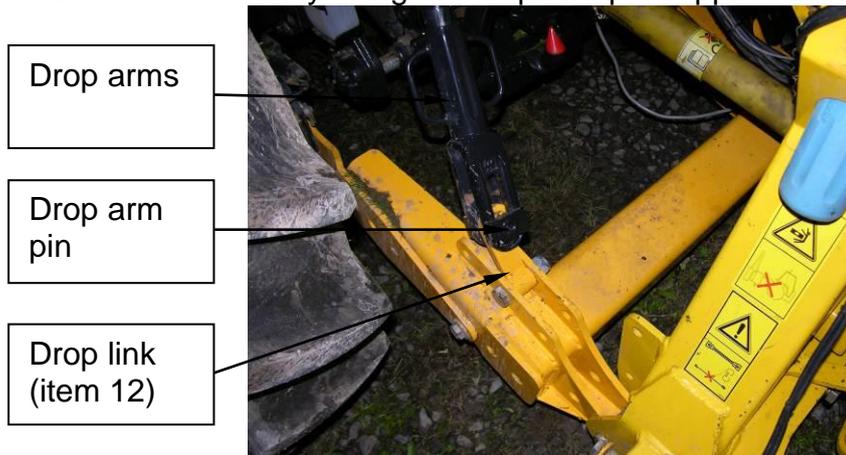


1. Remove the drop arm pin connecting the tractor's drop arms to the lift arms. Lift arms should ideally be removed or otherwise secured so that they cause no obstruction.
2. The tractor should now be carefully reversed slowly until it is in, approximately the intended final position relative to the machine. Ensure to keep the tractor squarely aligned to the trimmer assembly. If still attached the lower link arms may need to be repositioned to clear. Perform a 'Safe stop' procedure before dismounting from the tractor to check that the pin arms (item 2) are in line with the axle brackets attached to the rear axle of the tractor.



Ensure clearance maintained between the tractor and machine.

3. Connect the drop arms of the tractor into the drop links (item 12) attached to the axle frame assembly using the drop arm pin supplied with the tractor.



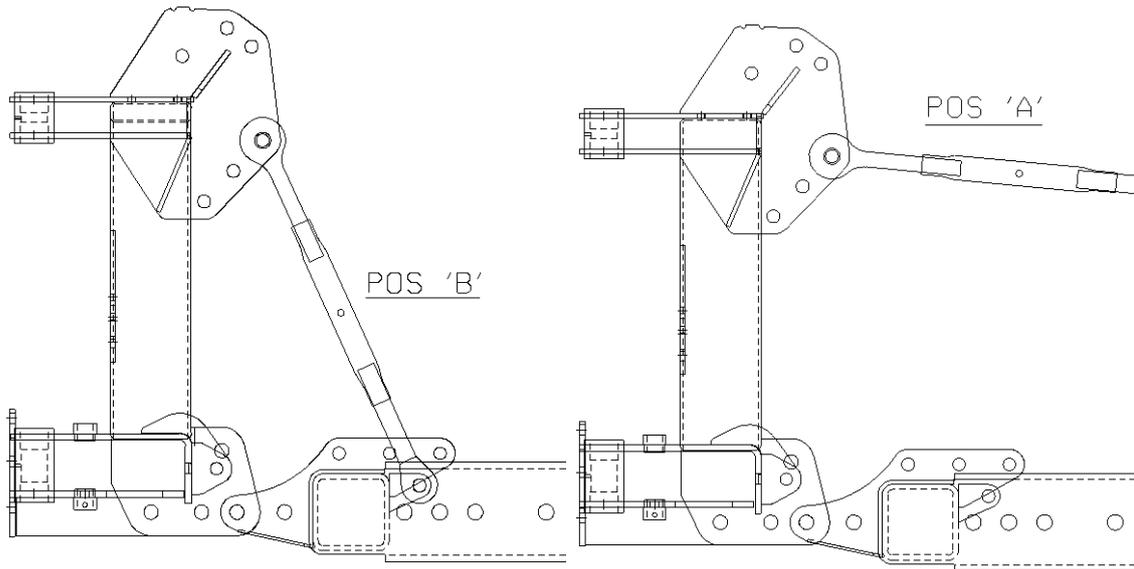
4. Once the tractor axle brackets and the axle frame assembly are aligned connect the axle frame into the axle brackets either by shortening the top link (item 10 set in POS 'B') or slowly and carefully raising the tractor's drop arms. The sub-frame will rise at its front so that the pin arms engage in the latches. Raise slowly and carefully until these are fully home and secure. Note – Do not lift the trimmer off the ground, just raise the axle frame. Fit relevant retaining pins and clips (see axle bracket instructions). There is no need to tighten the check chains of the tractor with this system.



5. Once frame is connected to axle bracket lower drop arms until top link (in position B) becomes unloaded.
6. Remove the top link (item 10) from POS 'B' and move into POS 'A' connecting between the trimmer frame and the tractor top link clevis. If the top link supplied with tractor can be shortened enough to fit between the trimmer and tractor (POS 'A') then it's recommended this is used rather than the top link (item 10). Note that the top link has a Cat 2 and a Cat 3 end with a spacer. Together these allow connection to Cat 2 or Cat 3 tractors. Ensure that the correct pins are used and that lynch pins are used throughout and are secure.



Ensure not to leave the top link in an overextended position between the machine and tractor



7. The machine should then be slowly and carefully raised to a height that brings the tractor's PTO shaft and the gearbox input shaft to the same approximate height, whilst checking at all times that if the lift arms are still attached they are fouling nothing.
8. To prevent undue stress on the top link clevis of the tractor, the system uses the tractor's drop arms to carry the weight of the machine. Some tractors, particularly of high hours, may be prone to their link arms sinking when the engine is switched off.
9. If the axle frame has already been fitted to the tractor (See section 5.5 items 8, 9 and 10) then slowly reverse the tractor until the holes on the axle frame become in line with the required hole on the trimmer main frame.
10. Fit the pins and lynch pins between the axle frame and the Powerblade frame using pins items 7 & 8.
11. Fit the top link into POS 'A' then following steps 6 and 7 as described above.
12. Check all components are fully tightened and all the fasteners in place.

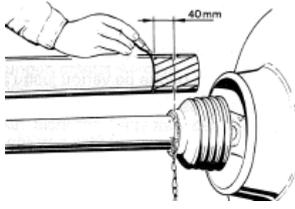
## 5.10 ADJUSTING AND CONNECTING THE PTO DRIVE SHAFT



Refer to section 2 – Accident prevention when using the PTO shaft

The correct length of the PTO drive shaft may vary depending on the tractor in use. It may be necessary to shorten the PTO drive shaft.

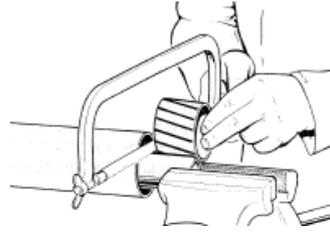
The length adjustment is to be carried out as follows:



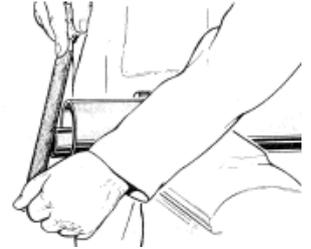
To adjust the lengths hold the half shafts next to each other in the shortest working position and mark them 40mm as shown.



Shorten the inner and outer guard tubes equally.



Shorten the inner and outer Sliding profiles by the same length as the guard tubes.



Remove all sharp edges and burrs, grease the sliding . Profile tubes



Grease the profile tubes before they are assembled, as they will otherwise be exposed to high friction forces.



Ensure the inner and outer PTO shafts are overlapped by at least 150mm when the tractor and machine are straight. Damage to the shaft and injury may result.

Fit the PTO shaft ensuring to:

Connect the pin type yoke end to the Powerblade trimmer.



Connect the pull release yoke end to the tractor.



With the PTO connected but with its drive disengaged, ensure that the machine can be lowered to its parking stand height without the PTO fouling on any part of the tractor or machine, the link arms (if attached) fouling in any way or the electrical cables being stretched. If 3 point linkage mounted machine ensure to remove the locking pin first.

Having connected the PTO shaft, ensure the guard anti-rotation chains are clipped to the chassis and tractor at both ends. The PTO shaft should turn clockwise ONLY.



Make sure the tractors correct PTO speed is selected at all times.

## 5.11 CONNECTING THE CONTROLS

Controls should be mounted near-to-hand on the LH side of the tractor. Ideally the controls should move with the seat so that if the terrain is bumpy the seat and controls will move up and down together.

All controls are supplied attached to a bracket. The supplied bracket is intended to replace the armrest on Grammar seats (this make is fitted to most tractors). Although it may be necessary to find an alternative way of mounting the controls if your tractor does not have a compatible seat (Note; consult your dealer before drilling the cab side, as there is a risk this could weaken the structure or damage underlying parts).



A 12 volt power supply is required for the electrical controls. These must be connected, via a suitable fuse. The power supply must not come from the cigarette lighter, three pin connector or trailer 7 pin socket; due to the electric controls having a high current draw. Low voltage will cause the system to function erratically. Therefore we recommend wiring directly to the tractor battery to guarantee system operation, with the supplied power lead, fuse and connectors.



Erratic operation or serious damage to the system can result if these instructions are not followed.



Beware of fire, sparks or electric shocks during fitment of power supply.

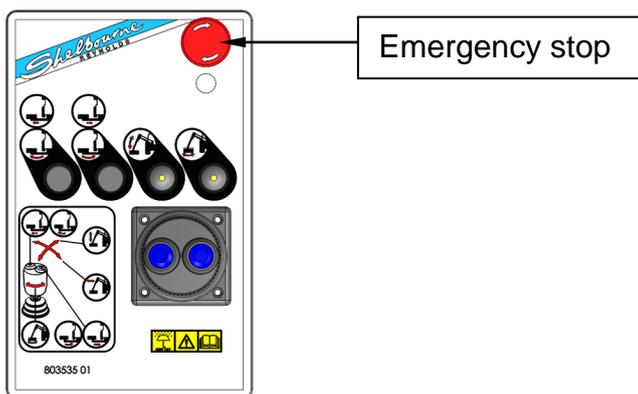
### Power supply

- Connect the Green/Yellow wire (negative feed for controls), to the negative battery terminal.
- Wire 1 (positive feed for controls) with twenty amp fuse to the positive battery terminal.

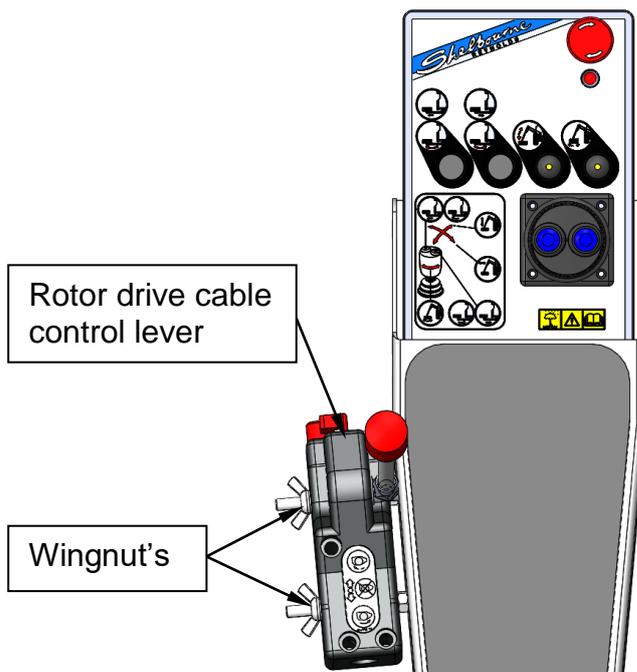
Route and secure the power lead into the tractor cab, terminating close to the controls armrest. Using the large rectangular shaped multi pin connector, connect the machine end wiring loom to the joystick control box. Then also connect the power supply to the joystick control box, using the two 4 pin screw connectors.



Check that the emergency stop button is functioning correctly (see section 6).



Rotor drive cable control lever should be mounted onto the fixing screws on the LH side of the electronic controls. Secure via the two wingnut's.



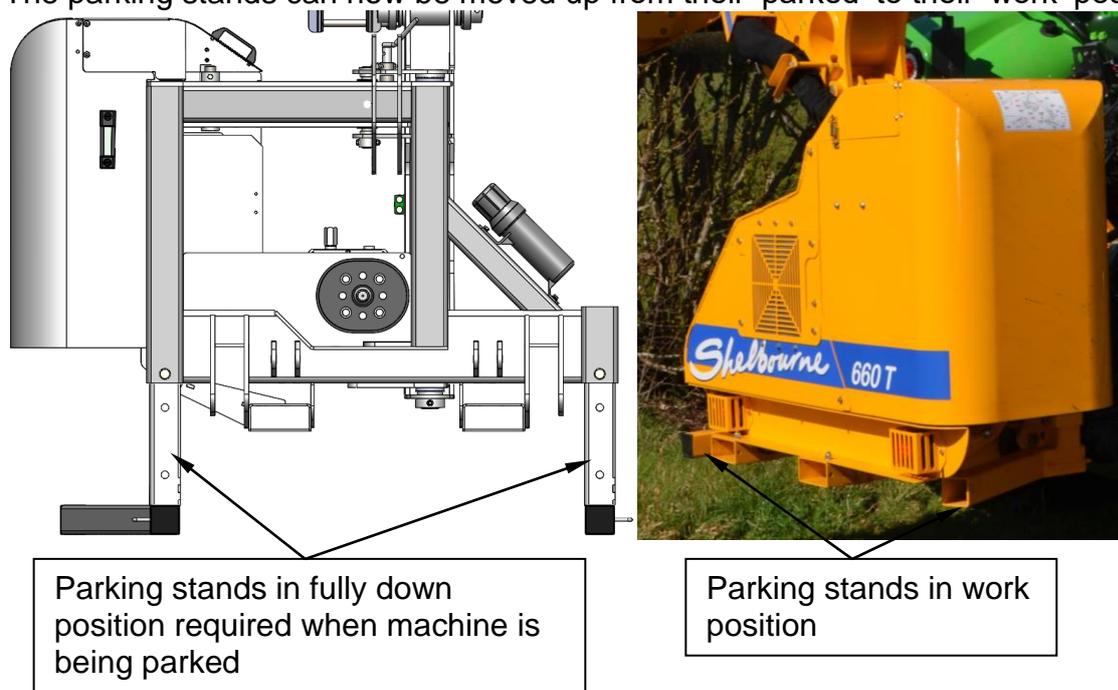
## 5.12 FINAL ATTACHMENT AND RUN UP



Refer to section 2.7 for accident prevention when operating.

Attach the lighting board 7 pin plug and the hydraulic roller hoses, to the tractor double acting spool if optionally fitted.

The parking stands can now be moved up from their 'parked' to their 'work' positions.



Ensure any cable operated function is in its neutral position see section 6.1. Start the tractor at low to moderate engine rev's, then engage PTO to allow the oil to circulate for about 10 minutes without operating any other controls. This will make sure that the oil is thoroughly filtered by passing it through the filter but with the minimum of other components.

 Open the taps on the lift cylinder to allow it to move (tap handles will now be in line with the oil flow). Move slew locking device to storage position (See section 7.1).

Having first read and understood the information on the controls (Section 6) again set the tractor speed to a slow to moderate level. Now carefully operate the control levers, buttons and/or joystick, and ensure that all the movements are functioning correctly; be ready at all times to cancel the action, should it be incorrect. Move all the cylinders to their extremes to expel any air.

 Ensure head or boom do not hit tractor cab or wheels

Place the flail head just above the ground ensuring flails will be clear. Now start the rotor. This will require moderate revs to avoid stalling-out the tractor, but full revs should not be used. Adjust the revs to give approximately 350rpm at the PTO and run the rotor for about 3-4 minutes. Stop the rotor, allow time to run down. Re-start rotor running in opposite direction, and again run for 3-4 minutes.

Check all hose runs to ensure that they are not pinching or chafing. Now check the oil level in the tank and top up if necessary.

### 5.13 REMOVAL – TRIMMER WITH DRAWBAR KIT



Refer to section 2.9 for accident prevention when leaving the machine.

Item No's in this section relate to the parts manual MAN-10105 KIT-08284.

1. Adjust the length of the adjustable link item 3 until the tractor drawbar pin becomes free.
2. Remove the tractor drawbar pin. Leave the adjustable link still attached to the trimmer main frame.

### 5.14 REMOVAL – TRIMMER WITH 3-POINT LINKAGE ASSEMBLY



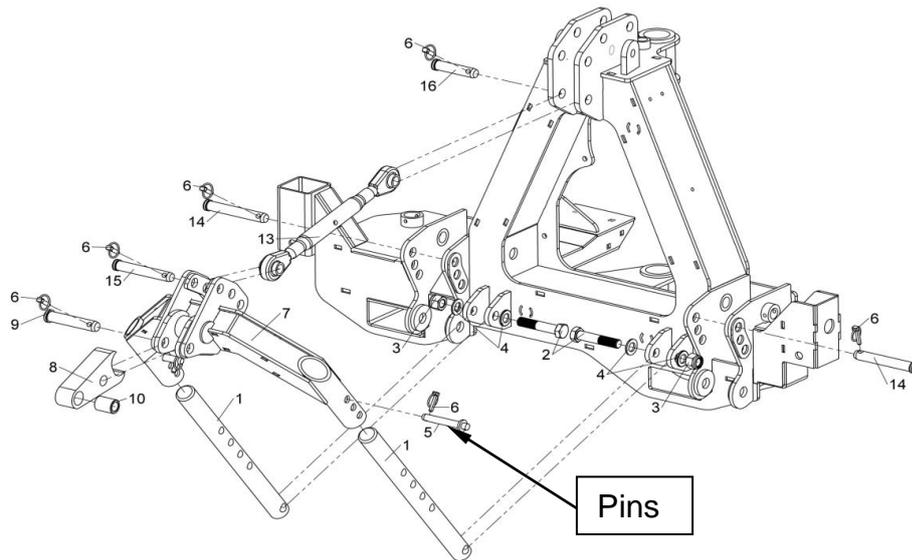
Refer to section 2.9 for accident prevention when leaving the machine.

Item No's in this section relate to the parts manual MAN-10105 KIT-08237.

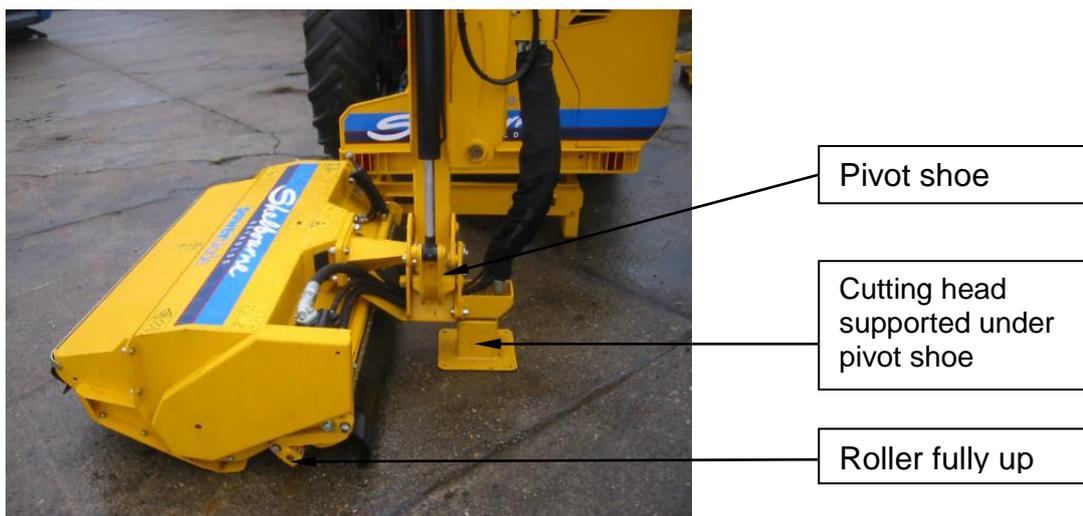
1. Select a firm and level site to park the machine.
2. Bring the head to a horizontal position approx. 1m from the wheel and 1m from the ground. If applicable close the telescopic cylinder. Ensure the roller is positioned in its upper most position (bolt up type or hydraulic).



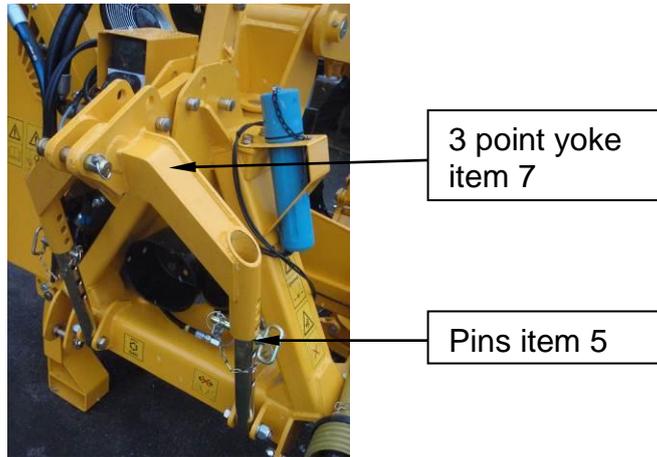
3. Slew the machine fully backwards, so that the booms are directly behind the tractor.
4. The reach cylinder may now be closed bringing the head to between 400 – 600mm of the rear light board.
5. Raise the linkage slightly to allow the pins items 5 and 6 to be removed.



6. The parking stands can now be lowered to their 'parked' positions (see previous section 5.10).
7. Then lower the tractor linkage until the stands are in contact with the ground. Adjust the tractor top link to ensure both stands are in full contact with the ground. The tractor top link should become loose, with no load on it when sitting correctly.
8. Lower the head onto the ground ensuring to block directly under the pivot shoe bracket.



9. Once sitting stable, disengage the PTO.
10. Turn the taps on the lift cylinder to the off position (see section 7.1).
11. Remove lighting 7 pin plug, power supply, hydraulic roller hoses and any other connections from the back of the tractor.
12. Remove trimmer controls from the tractor cab along with any cables.
13. Remove the top link. Refit the pins (items 5 and 6) so that the 3 point yoke weight (item 7) can be supported.



14. Remove the top link pin between the tractor and 3-point linkage rocker. Then swing the 3 point assembly away from the tractor towards the trimmer main frame. Reposition the rocker (item 8) from the front of the 3 point yoke to the rear enabling it to connect between the trimmer main frame and the 3 point yoke.



- 15. Remove the PTO.
- 16. Tractor lower link arms may now be disconnected from the trimmer.
- 17. It is suggested that the driver double-check that there are no connections still 'made' between tractor and machine, both before pulling slowly away and again on stopping after moving forward a few inches at a time.

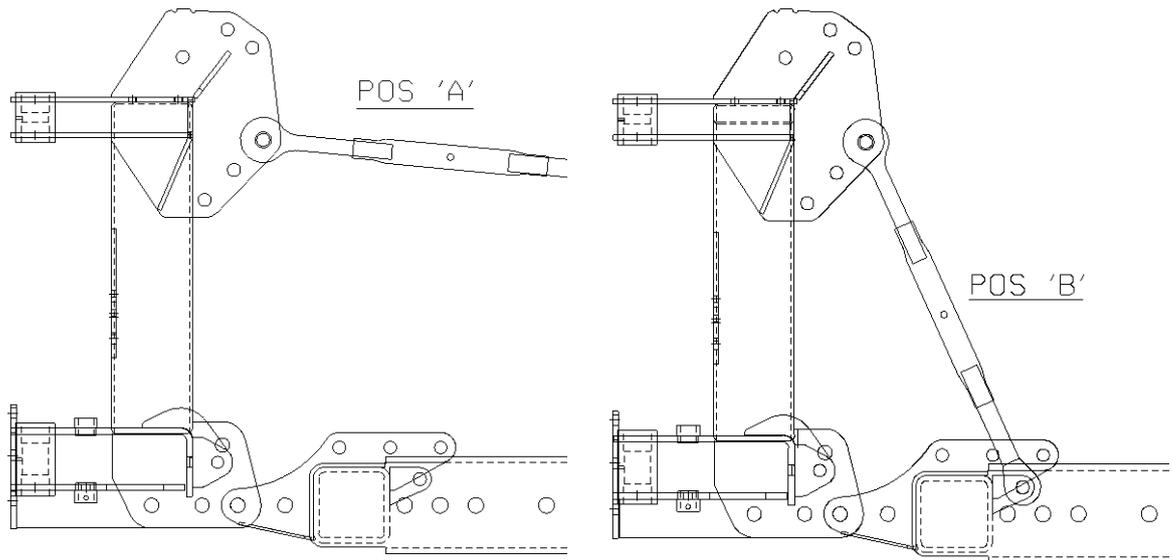
### 5.15 REMOVAL – TRIMMER WITH AXLE FRAME ASSEMBLY

 Refer to section 2.9 for accident prevention when leaving the machine.

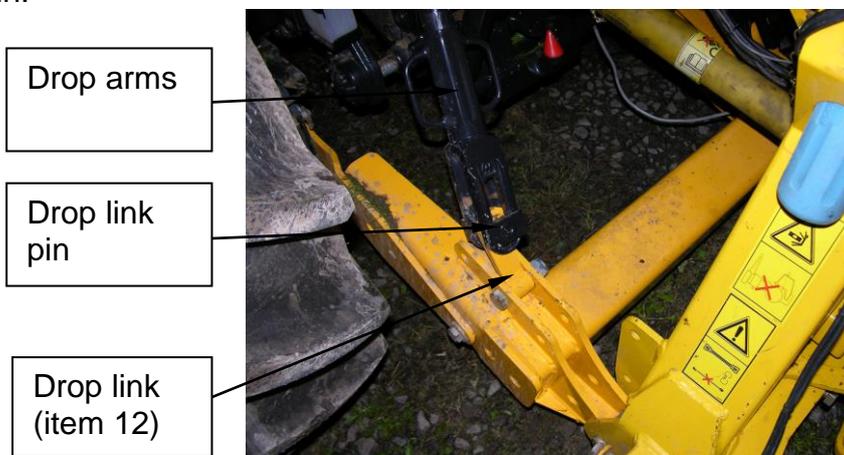
Item numbers referenced in this section relate to the parts manual MAN-10105, Kit-08015.

1. Follow steps 1 – 4 from above section 5.11.
2. Follow steps 6 – 12 from above section 5.11.
3. Remove the PTO shaft.

- Once sitting stable, remove the top link from position 'A' and place in position 'B'.



- Detach the tractor drop arms from the drop links (item 12) by removing the drop link pin.



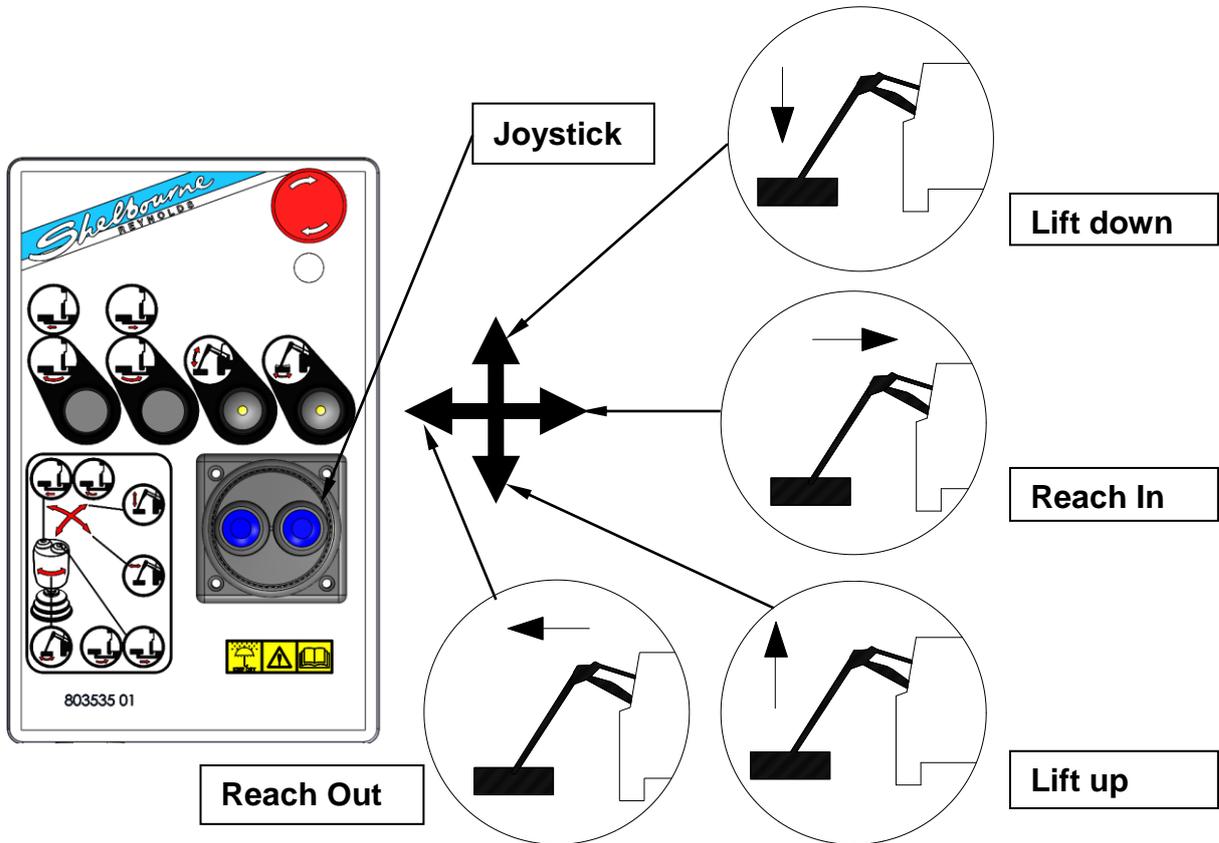
- Release the axle bracket latches, allowing the sub frame to be lowered clear of the tractor by extending the adjustable top link.
- It is suggested that the driver double-check that there are no connections still 'made' between tractor and machine, both before pulling slowly away and again on stopping after moving forward a few inches at a time.

## 5.16 REATTACHING THE MACHINE

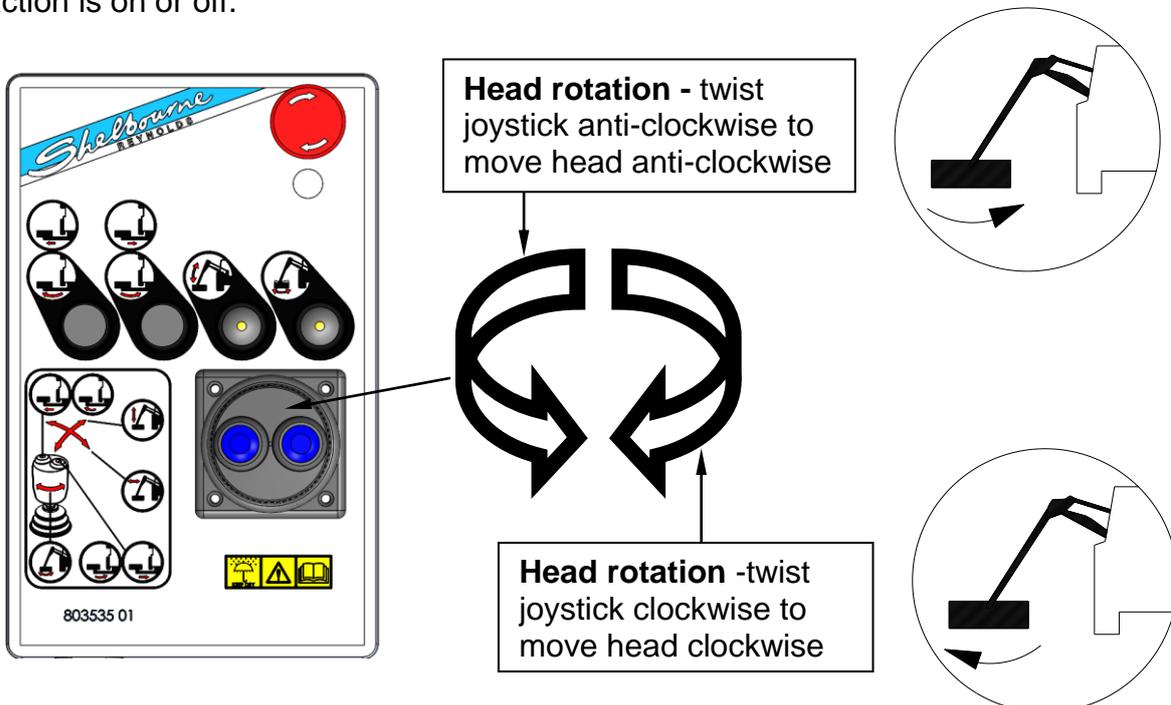
Reattaching follows the same sequence as in the initial attachment methods. It will not be necessary to adjust the length and width of the sub-frame unit, or the PTO shaft length unless there has been a change of tractor. Any cab screens that have been removed must be refitted. Unless the hydraulic circuit has been disturbed it will not be necessary to follow a running-up procedure, though the system should always be run slowly until the oil begins to warm up.



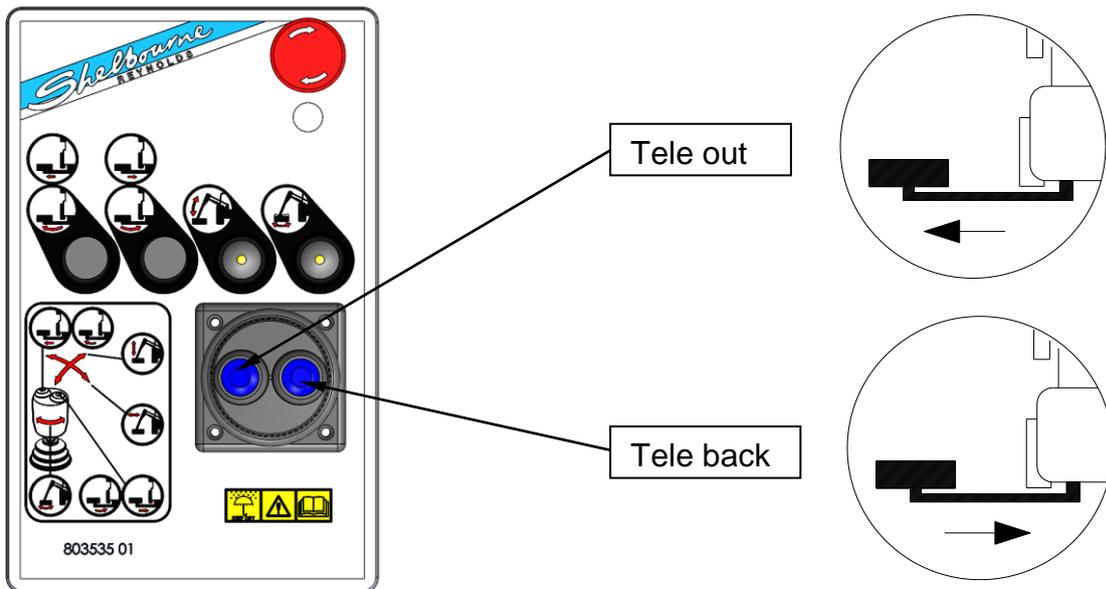
**Lift & Reach:** By moving the joystick to the left and right the reach cylinder is actuated in the relevant direction; moving it back/towards and forwards/away from the operator gives lift and lower respectively. These actions are proportional; that is small joystick displacements give slow cylinder movements and large displacements give faster cylinder movements. Shelbourne Reynolds Ltd or a Shelbourne Reynolds approved dealer will set-up the controls to the operators liking when the machine is delivered.



**Head rotation:** Twist the joystick clockwise and anti-clockwise to rotate the head. This action is on or off.



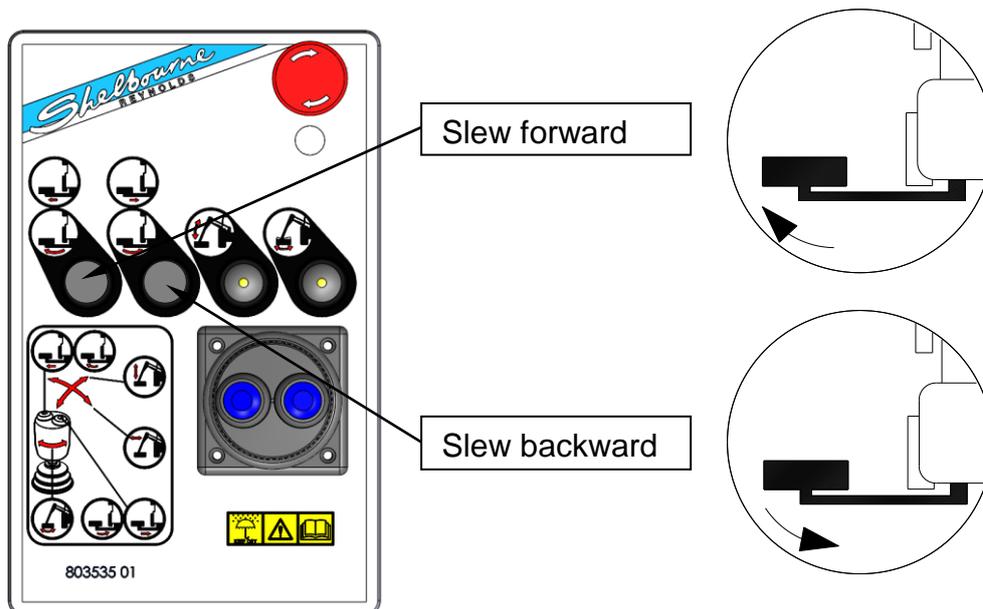
**Telescopic (option):** The buttons on the top of the joystick operate the telescopic boom.



In addition to the joystick, there are 4 additional buttons; each represented by a diagram. Their meanings are detailed below.

**Slew forward:** Rotates the arms into the work position next to the tractor.

**Slew backward:** Rotates the arms into the transport position behind the tractor.



### Slew to Tele button change

To swap Slew control to Telescopic buttons and Telescopic control to Slew buttons.

Press and Hold together the Slew Forward and Slew Reverse.

To return Slew control to Slew buttons and Telescopic control to Telescopic buttons.

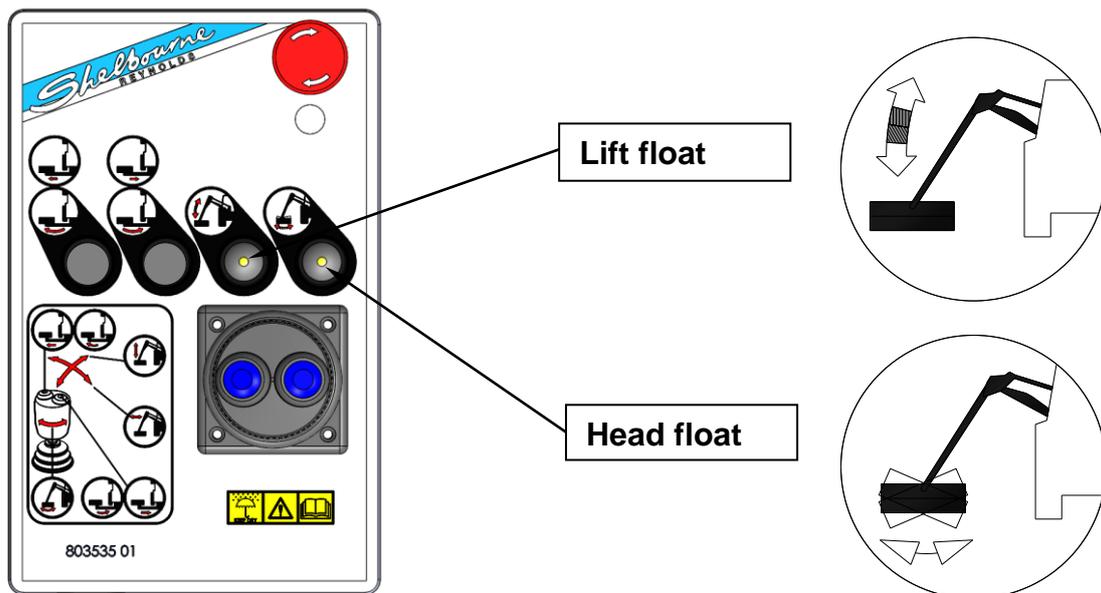
Press and Hold together the Slew Forward and Slew Reverse.

**Lift Float (option):** Allows the arms to follow the contours of the ground. An accumulator carries the weight of the arms. Lifting or lowering will adjust the amount of force the head exerts on the ground. Hold the button down for 1 second to activate lift float. An LED light indicates when the lift float is ON. Lift float will be turned off by pressing the lift float button again.



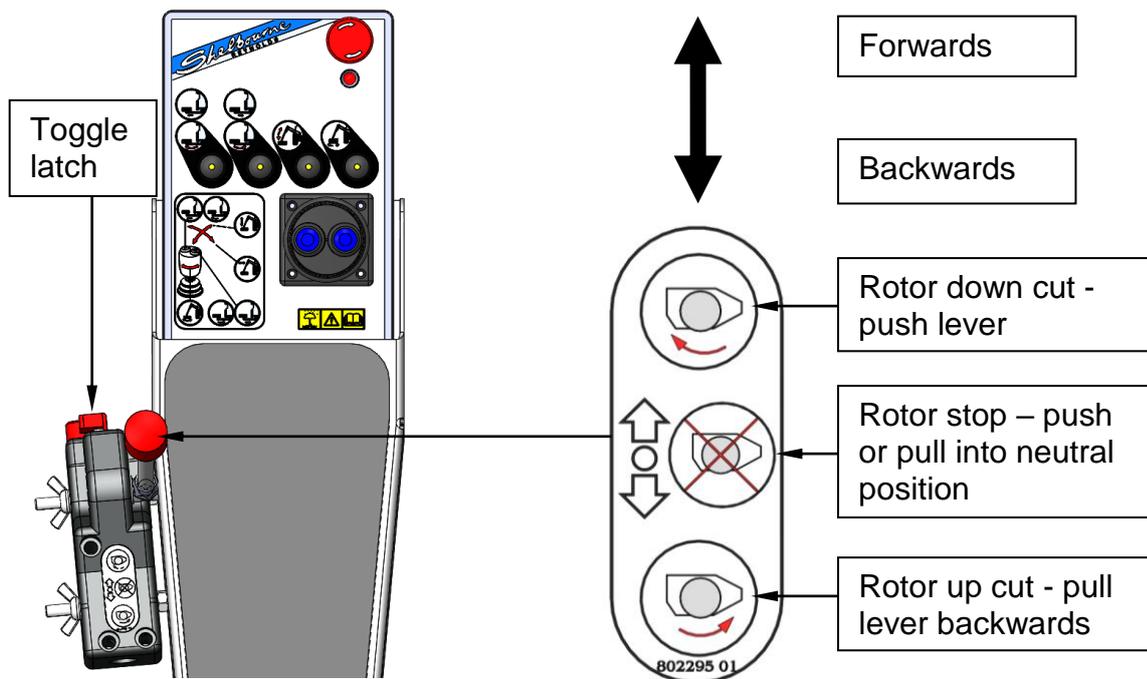
Ensure when engaging for the first time of use to always have the cutting head in contact with the ground. Ensure no person is within the machine working area.

**Head Float (option):** Allows the cutting head to follow the contours of the ground. Hold the button down for 1 second to activate head float. An LED light indicates when the head float is ON. Head float will be turned off by pressing the head float button again.



**Bi-directional rotor:** The rotor can be run in both directions rotor up cut and rotor down cut.

- To go from rotor up cut to rotor down cut push the lever into the middle neutral position.
- Allow the cutting head rotor to **stop**.
- Toggle the red latch at the front of the cable assembly.
- Engage rotor in the down cut direction, by pushing the lever forward.
- To go from rotor down cut to rotor up cut pull the lever into the middle neutral position.
- Allow the cutting head rotor to **stop**.
- Toggle the red latch at the front of the cable assembly.
- Engage rotor in the up cut direction, by pulling the lever backwards.



Always stop the rotor by leaving the lever in its neutral position when not in use.

## 6.2 600 CONTROLS - GENERAL OPTIONS

**Hydraulic roller:** Hydraulic roller uses the tractor spool lever to move the roller up or down (see tractor manual for spool operation). This allows the operator to adjust the roller position without leaving the tractor cab. The roller is able to be positioned in any position within the stroke of the cylinder. However see section 7.6 for best position depending on the task being undertaken.

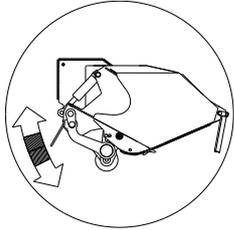
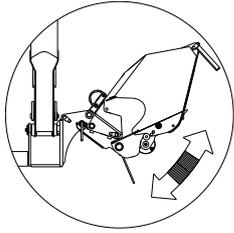


**Narrow lane bracket:** This can be controlled either by using a tractor spool directly or by using the same hoses that control the hydraulic roller from the tractor spool. A directional control valve is positioned on the head allowing oil to be diverted between either the hydraulic roller or narrow lane bracket. The control lever can be moved between two positions.



Only operate directional control valve when the narrow lane bracket is in its fully closed state. High risk of crushing.

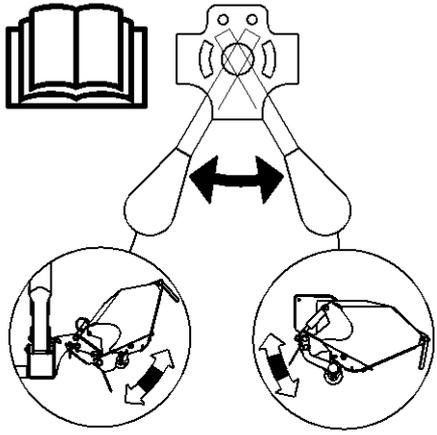
Control lever  
Pos.1 Narrow lane  
bracket



Control lever  
Pos.2 Hydraulic  
roller



Directional control valve

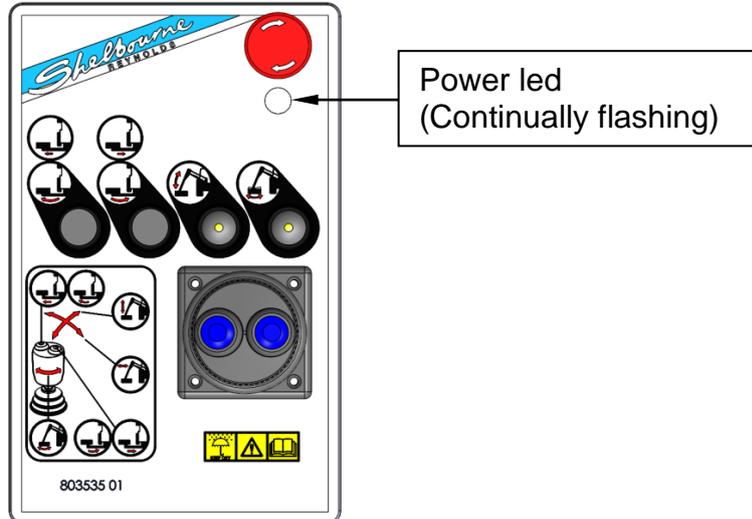
	 <p>803152 01</p>
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### 6.3 600 CONTROL BOX SETTINGS

How to adjust the control box settings set points

**“Press & hold the Lift and Head float buttons”**, then power up to enter into a **“Settings mode”**.

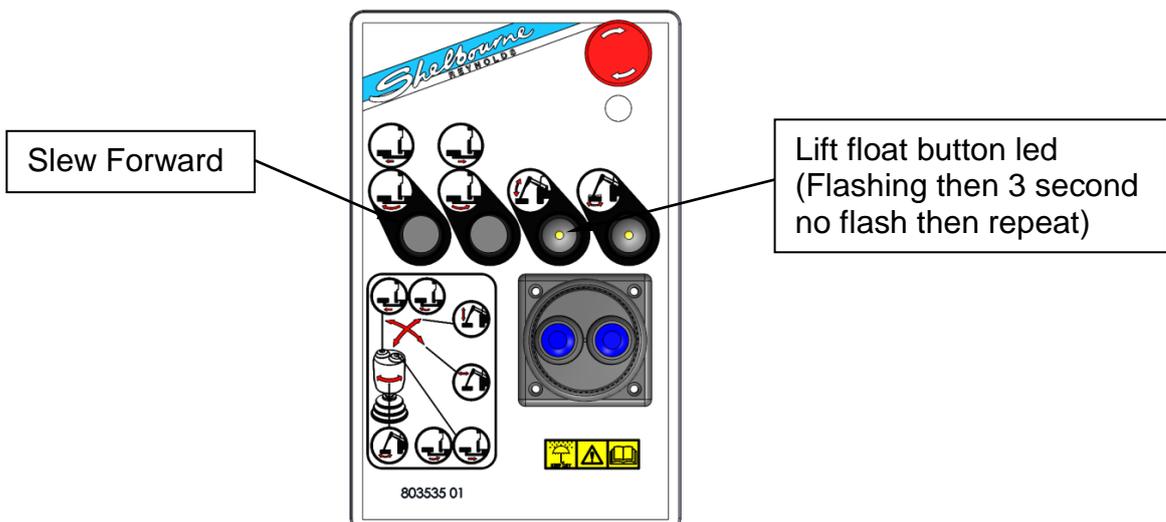
At this point the power green led will continually flash to indicate you’re in the **“Setting menu”**.



Before adjusting from one function to another (dead band lift & reach, dead band H/A, lift speed, reach speed and H/A) firstly cover the head float button LED. Then pressing the **“Slew forward button”** (left of the four buttons) will enable you to move from one function to another. The **“Lift float button”** led will then simultaneously change and flash to indicate which function you’re in.

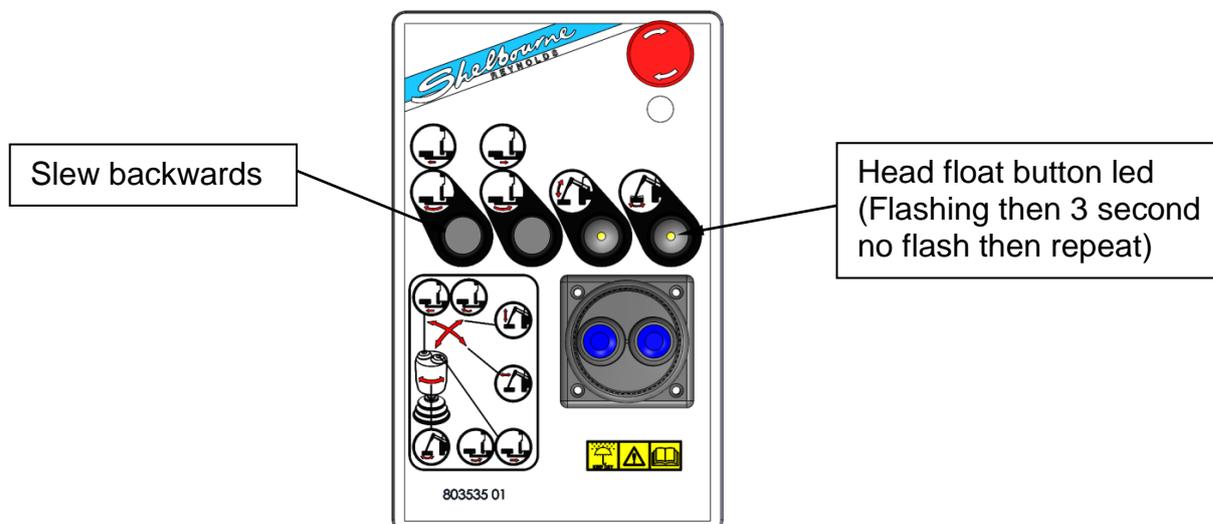
The **“Lift float button”** LED flashes once, twice, three, four and five times to indicate which function you’re adjusting then 3 second no flash then repeat.

- |                             |      |                                    |
|-----------------------------|------|------------------------------------|
| 1. Dead_band (LIFT & REACH) | 10   | 1-40 <b>** (INITIAL RESPONSE)*</b> |
| 2. Dead_band (H/A ONLY)     | 20   | 1-40 <b>** (INITIAL RESPONSE)*</b> |
| 3. Lift_speed               | 10   | 1-20 <b>** (SPEED OF LIFT) **</b>  |
| 4. Reach_speed              | 15   | 1-20 <b>** (SPEED OF REACH)**</b>  |
| 5. H/A Left/Right           | Left | <b>HEAD ANGLE DIRECTION</b>        |



Before adjusting the setting value to another firstly cover the arm float button LED.

“Slew back” (left middle) will enable you to change the setting value. The “Head float button” will indicate this value setting by flashing with 3 second delay then repeat.



Standard setting = **Highlighted**

#### 1. Dead band (LIFT & REACH)

- 1 flash = 2
- 2 flash = 5
- 3 flash = 10**
- 4 flash = 20
- 5 flash = 40

#### 2. Dead band (HEAD ANGLE)

- 1 flash = 2
- 2 flash = 5
- 3 flash = 10
- 4 flash = 20**
- 5 flash = 40

#### 3. Lift speed

- 1 flash = 1
- 2 flash = 5
- 3 flash = 10**
- 4 flash = 15
- 5 flash = 20

#### 4. Reach speed

- 1 flash = 1
- 2 flash = 5
- 3 flash = 10
- 4 flash = 15**
- 5 flash = 20

## 5. Head angle (H/A) left / right

1 flash = Anti clock (out) left

2 flash = Clock (in) right

If no buttons are pressed for 10 seconds the system times out of the settings menu power led becomes solid again or “**turn off**” and on using emergency stop will save the value and return out of the settings mode.



**SECTION 7:**

**OPERATION**



Refer to section 2 for safety procedures.

**7.1 MOVING FROM TRANSPORT TO WORK POSITION**



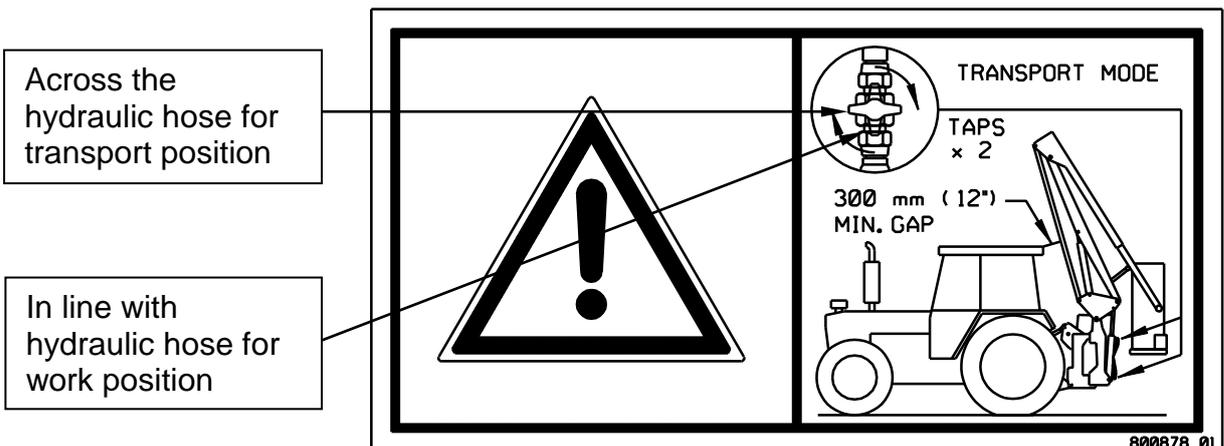
See section 2.7 for accident prevention when operating.

- For 3 point linkage machines lower the tractor 3 point linkage so that the weight of the machine is carried by the stabiliser system. For axle mounted machines this is not required.
- Ensure the slew locking device has been removed, placed into its storage position and taps on the lift cylinder moved from their transport to the work position.

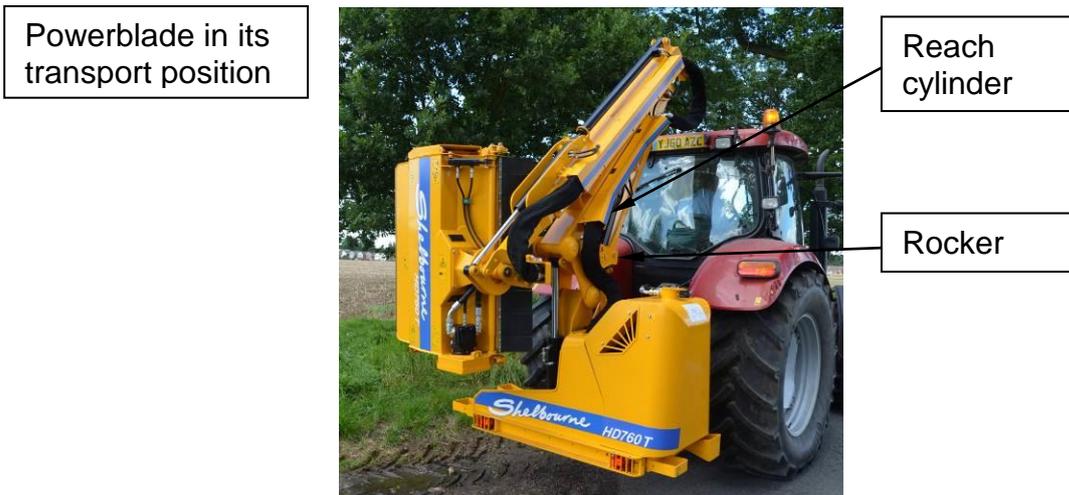


Slew locking device locking the slew cylinder during 'transport'

Slew locking device in its storage position during 'work'



- Extend the reach cylinder so that when the slew cylinder is extended the trimmer head misses the tractor wheel/cab. Extending the slew cylinder will rotate the arms to the work position.



- Use the lift, reach and head angling cylinders to bring the head to a position near to the tractor, parallel to, and close to the ground.



## 7.2 STARTING THE ROTOR



See section 2.7 for accident prevention when operating.

With the tractor engine revs low, the PTO running and the head positioned as above. Check that all observers are clear of the Powerblade trimmer and tractor. Warn bystanders by sounding the horn of the tractor several times. Ensure your visibility is kept clear at all times. Engage the cutting head rotor drive using the cable control lever. Slowly raise the engine revs to the correct speed; 540 rpm for grass cutting, 450 rpm approx. for hedgecutting.

### 7.3 STOPPING THE ROTOR



See section 2.7 for accident prevention when operating.

The rotor can be disengaged with the PTO running at working revs, because of the design of the motor control valves. However it is good practice to reduce the engine speed first.

### 7.4 TRANSPORTING WITH THE TRACTOR



See section 2.11 for accident prevention when taking on public roads

1. With the rotor stopped as above, bring the head to a horizontal position approx. 1m (3') from the wheel and 1m from the ground.

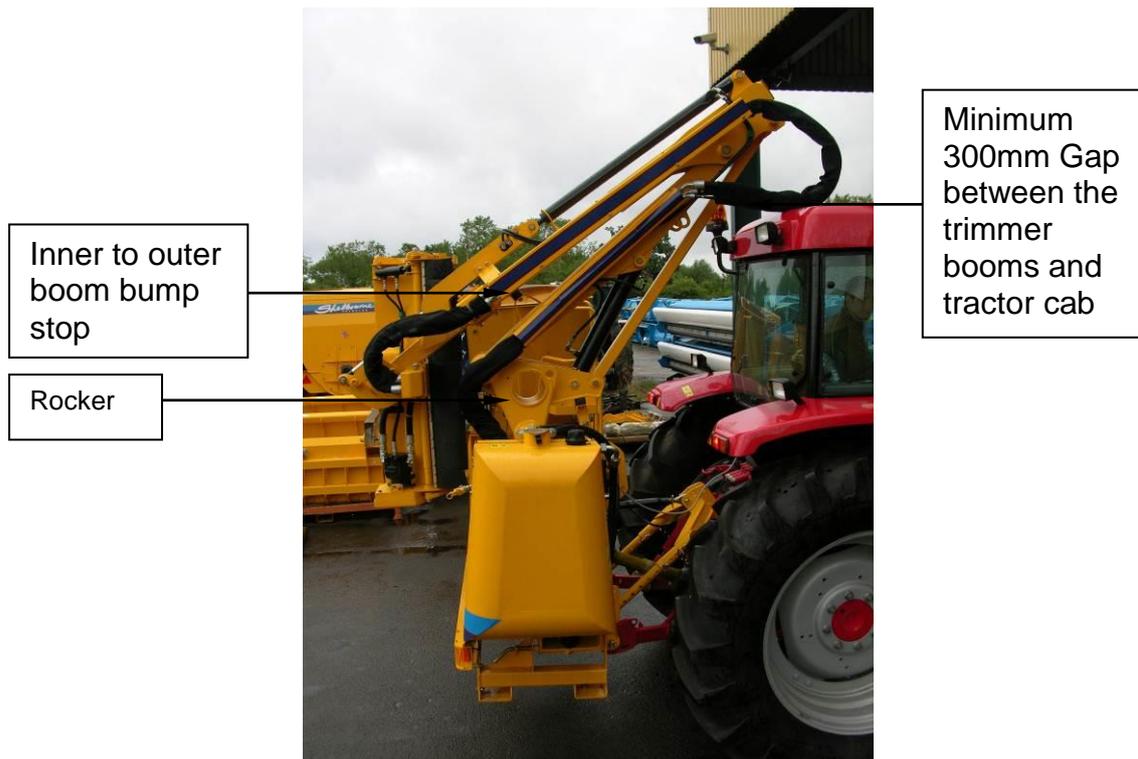


2. Use the slew cylinder to rotate the arms fully back, and then position the cutting head with the flail facing the operator and the top of the cutting head towards the traffic.



3. The reach cylinder can now be fully closed bringing the outer booms onto the bump stop on the inner boom.
4. The lift cylinder should be adjusted so that there is at least a 300mm gap between the booms and the rear of the tractor cab, the boom members will be subjected to considerable stress should the head/outer arm bounce. Even then the transportation speed must be reduced on uneven surfaces.

5. Ensure that the booms do not foul the tractor. Disengage the PTO.

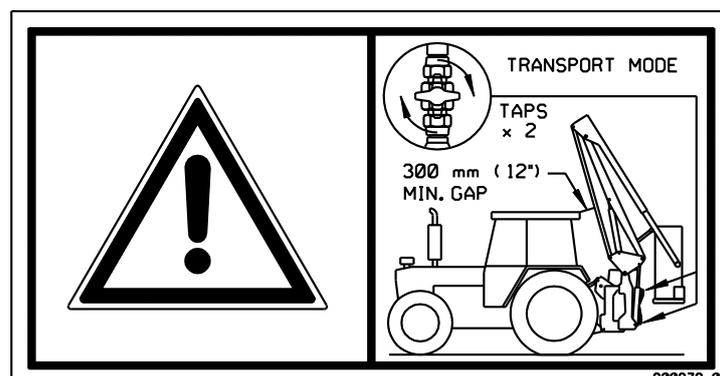


6. On 3 point linkage mounted machines we recommend that the linkage is carefully raised by a small amount for transportation – so that the weight of the machine is carried on the lower link arms of the tractor rather than its top link anchor point. As the linkage is raised you will find that the nose part can rotate by a small amount within the stabiliser frame. Once there is a small gap between the front of the stabiliser frame and the recess in the nose part the weight is being carried on the link arms.

Care must be taken that the positioning of this machine relative to the tractor does not cause the dimensions of the combination (especially its width) to make it ineligible to travel on the highway. Check road regulation for both width and speed.

The booms should be arranged so that the head is as close as is practical to the rear of the tractor (while leaving a safe distance from boom arms to cab top).

7. The lift cylinder taps must be turned off during transit.



8. Even though the slew cylinder has PO check valves which locks the cylinder hydraulically a mechanical slew locking device should be put in place during all transportation on the public highways.



Slew locking device locking the slew cylinder during 'trans

Slew locking device locking the slew cylinder during 'trans

9. Disengage the PTO and turn the control box power off.

600 trimmers have road lights specified as standard so these should be connected when on the public highway. Ensure head is not obscuring lights visibility.

## 7.5 WORKING ON THE HIGHWAY



See section 2.11 for accident prevention when taking on public roads

When intending to operate on the highway consult the local Highways Department regarding notifications and approval, as rules and regulations will vary from area to area and with the class of highway. It is likely that, at least, warning signs will need to be placed at both ends of the work area. A flashing beacon and dipped headlights will assist in drawing the attention of other road users to the tractor and machine.

## 7.6 FLAIL HEAD ADJUSTMENTS



See section 2.10 for accident prevention when servicing / adjusting the machine.

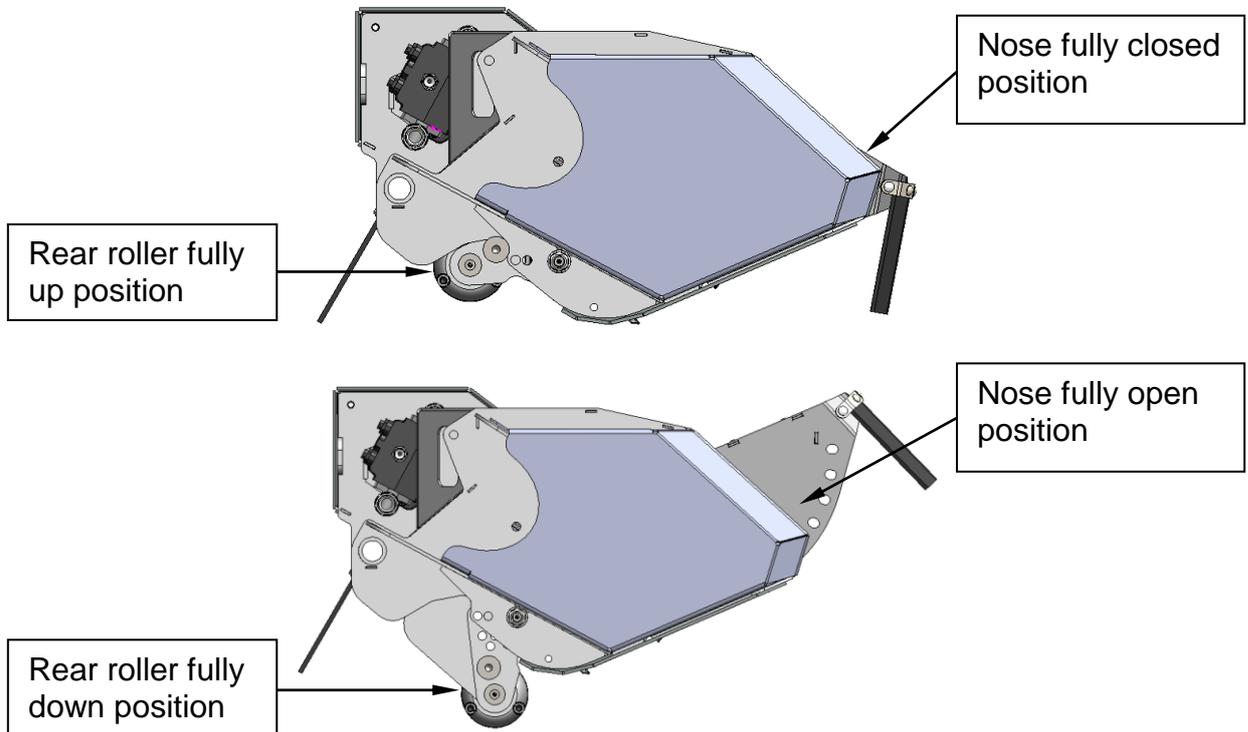


Always lower the cutting head into the work gently.

The rear roller can be placed in one of 4 height settings. For hedge work the roller can be raised so that it is 25mm (1") above the cut height. Obviously this is totally unsuitable for verge work; for which the remaining positions are provided. These will leave the vegetation at a height of 30, 75 or 100mm. Position head on its side in contact with the ground, then loosen and remove the other locking bolt. The bracket can then be swung to the desired position and the bolts replaced and tightened.

 Never remove the rear roller completely. It helps to control the flow of cut material out of the head and helps to shield the flails from obstructions.

The nose is adjustable into one of six positions. To reduce the danger of debris being thrown out of the front of the head the nose should be set in its lowest position for verge work, and as low as is practical for hedge cutting.



 Never remove the nose completely. Always keep the front and rear curtains in good condition.

The rotor control can be engaged to 'up' cut or 'down' cut. However 'down' cut puts greater strain and shocks on the rotor and drive components and leaves a ragged finish. If intending to downward cut, ensure that the flails fitted are suitable for this task, i.e. bi directional.

 Never reverse the direction of cut while the rotor is still turning, wait for it to stop.

## 7.7 HYDRAULIC ADJUSTABLE ROLLER

 See section 2.7 for accident prevention when operating.

Hydraulic adjustable roller is an optional extra on all models. One hydraulic cylinder is mounted on the head shell and can infinitely vary the position of the roller throughout the range possible for the standard bolted version. The cylinder is actuated by a double-acting hydraulic spool service from the tractor.

 Ensure that both hoses are correctly connected before adjusting the roller. Damaging high oil pressures can be generated if actuated with one hose disconnected.

## 7.8 WIRE CUTTER



See section 2.7 for accident prevention when operating.



See section 2.8 for accident prevention when removing a foreign object/blockage.

The wire cutter is an important safety feature. It is located on the underside of the adjustable part of the nose. Its function is to, as far as possible cut longer lengths of wire into shorter, safe lengths. However, the dangers that wire presents means that the operator must ensure that there is no wire in the area to be cut and that there is no wire wrapped around the rotor. Follow below section removing foreign objects or blockage from the machine if needing to remove wire from the cutting head.



Never interfere with, or modify the wire cutter.

## 7.9 VERGE CUTTING



See section 2.7 for accident prevention when operating.

All 600 trimmer models have head and lift float as options.

Head float works using the centrally-placed head which can then roll naturally with the ground contours, easing the operator's task. The operator can override this manually by operating the lever or joystick head angle service.

Lift float facility is, operated by manually charging an accumulator. This reduces the load on the roller; thereby lowering the break back forces and saving the operator from having to constantly alter the cutting height. The operator will be required to operate the lift cylinder up or down to always ensure the cutting head rear roller is in contact with ground.



Never attempt to cut hedges with the Arm float engaged.  
Never leave the Arm float engaged when folding for transport.

As the head is brought inwards the pressure in the lift cylinder needed to support it is reduced. If the lift float is left engaged the excess pressure can cause it to lift too much and/or unexpectedly.

Going too fast along the ground will tend to leave a ragged finish.

For machines fitted with a hydraulic roller it's recommended to bolt the roller up when verge mowing for any long periods of time. This will serve to increase the life span of the wearing components within the roller linkage.

## 7.10 HEDGE SHAPE AND CUTTING SEQUENCE



See section 2.7 for accident prevention when operating.

The shape of the hedge is likely to be influenced by regional practices and what is required of the hedge. An 'A' shape is usually recommended as the wide base encourages wildlife and favours new growth. It is considered that, though neatest, a rectangular hedge favours top growth, which can cause the base to die back. Heavy falls of snow can then damage it. Where heavy snow is likely a sloping top is often used; the extra light reaching the base keeps the base strong and also helps to throw off deep accumulations of snow.

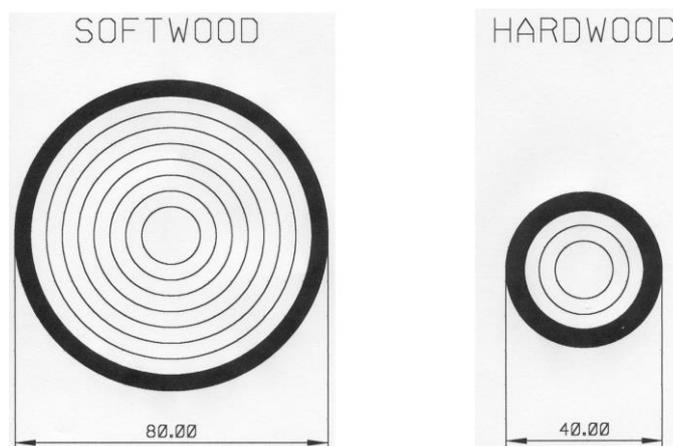
If the hedge bounds a road it is suggested that the siding cuts on the non-road side are completed first, followed by the bottom on that side. The advantage here is that the hedge will be as thick as possible to resist debris flying through it onto the road. The side(s), top and then the bottom can then be cut from the roadside.



Never cut the other side of the hedge with the rotor facing towards you. Debris would have a direct path to you and you are more likely to hit dangerous objects, as you cannot see them.

## 7.11 CUTTING THICKNESS

The below is a guide to maximum sizes.



## 7.12 REMOVING FOREIGN OBJECTS OR BLOCKAGE FROM THE MACHINE

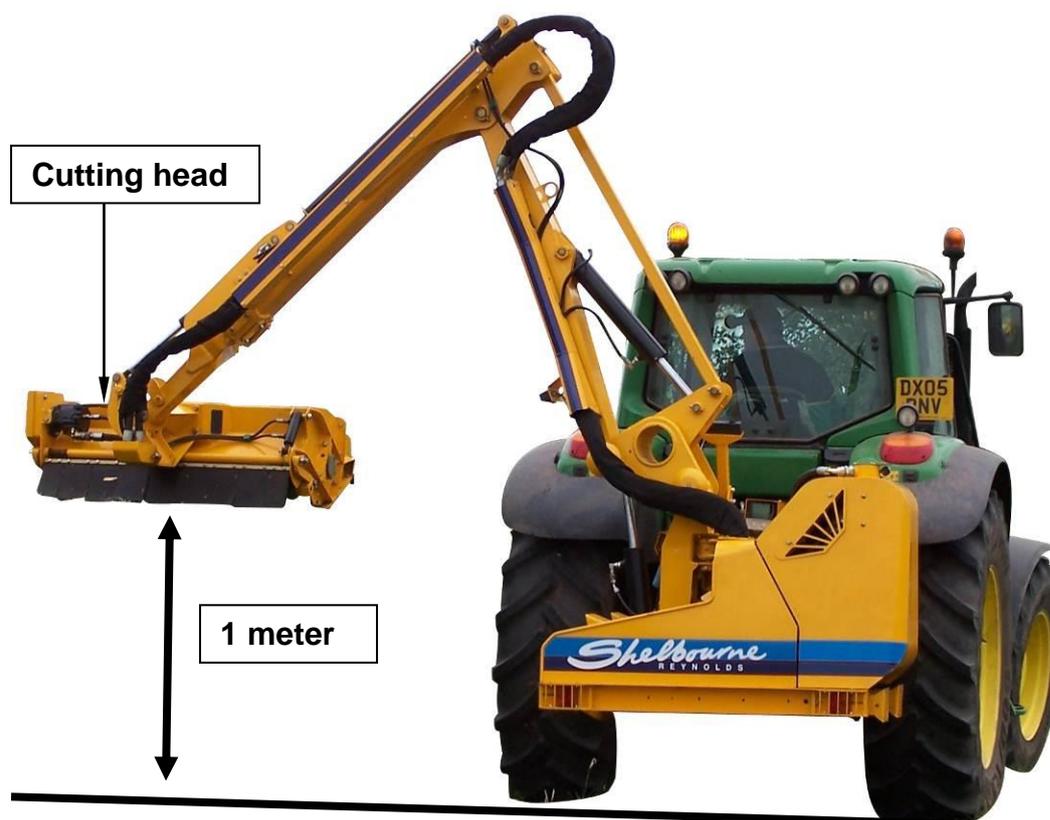


Refer to section 2.8 – Accident prevention when removing a foreign object or blockage.

If during operation, a knocking sound is heard or the cutting head stalled then there will be a foreign object such as a large stone, tire, wire, etc or a buildup of material within the cutting head area. Stop the cutting head immediately using the rotor stop lever, along with the tractor movement.

If possible lift the cutting head away from the material being cut. Adjust the angle of the cutting head so that the obstruction is visible to the operator. Upon seeing the obstruction the operator can now assess if it can be removed by reversing the rotor or if it needs to be removed manually.

Before reversing the cutting head rotor re-position the cutting head horizontally in mid-air within 1 meter of ground level. Then reverse the rotor for approximately 10 seconds. After reversing check to see if the obstruction has been removed.



If the obstruction has still not been removed it'll need removing manually. Ensure that the cutting head is lowered to the ground or supported in such a way that hydraulic or mechanical failure cannot injure any personnel. Position the cutting head vertically upright so the rotor can be accessed. Perform a 'SAFE STOP' procedure before proceeding to leave the tractor cab. Using appropriate PPE and the safest method possible remove the obstruction until the rotor is free to turn. Adjusting the cutting head nose or roller to gain access may also help with clearing the cutting head.



Cutting head vertically upright but in contact with the ground

### 7.13 REACH AND WORKING ON SLOPES



See section 2.7 for accident prevention when operating.

The considerable reach of any hedgecutter combines with the weight of the head to produce a large overturning effect on the tractor. The operator should remain aware of the danger this can present, particularly on slopes; where the tractor may already not be as stable as it would on a flat surface.

When moving between bouts of cutting always retract the booms. High shock loads can be generated when moving at speed with the booms outstretched and these could initiate fatigue cracking in the booms. If cracks begin they will lengthen even under light loads.

### 7.14 BREAKBACK



See section 2.7 for accident prevention when operating.

The booms are protected when travelling in a forward direction by a relief valve mounted on the slew cylinder. The booms **are not** protected in event of a high-speed collision, or when travelling backwards.



Do not attempt to use the machine when travelling backwards.



Neither the booms, nor the obstacle, will be protected in a high speed collision.

When the breakback operates, stop the tractor's forward movement immediately and reposition the head, maybe lift over an obstacle, before resetting the breakback position.

The slew cylinder is also equipped with check valves to ensure that the booms are held securely in the transport position. Do not remove the relief cartridge, or reduce its setting, as this would allow oil to bypass the checks. Increasing this relief valve pressure without being authorised to do so by Shelbourne Reynolds will invalidate warranty as the machine components may see excessive forces which may result in component failure.

### 7.15 TELESCOPIC ARM



See section 2.7 for accident prevention when operating.

Telescopic outer arm is an option on 600 trimmers. These give an extra 1.2m (6.0Mt) of horizontal reach, which can be useful for high hedges, deep or wide ditches and banks, while still keeping a compact arrangement for close work when closed-in.



## 7.16 NARROW LANE BRACKET

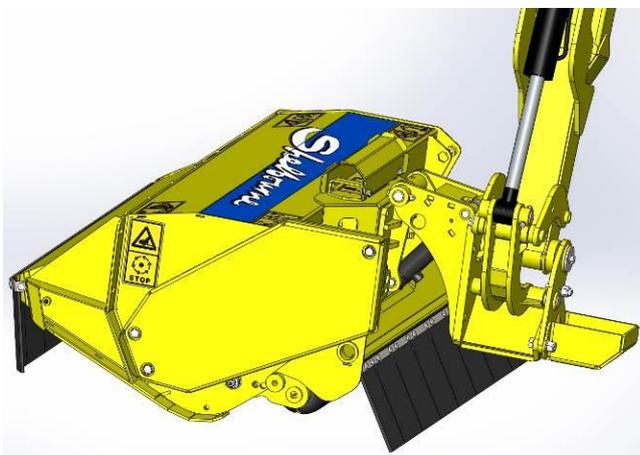


See section 2.7 for accident prevention when operating.

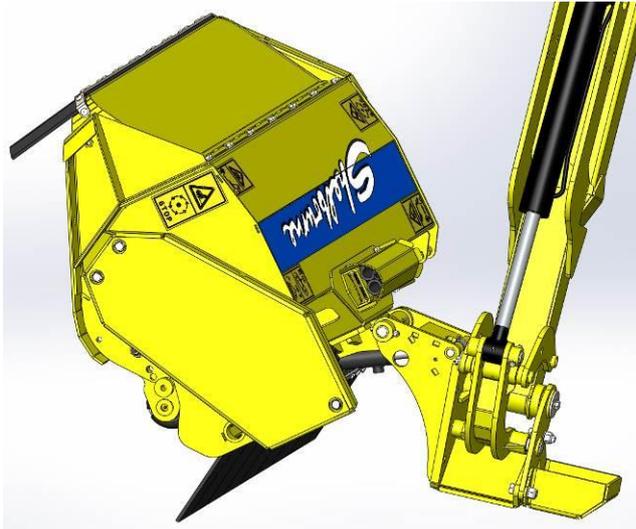
Narrow lane bracket is an option on all models. This feature allows the head to rotate up 53 degrees using the tractor spool valve (see section 6). Using the narrow lane bracket enables the operator to tuck the trimmer booms and head behind the tractor wheel when cutting the side of a hedge when working within narrow lanes. It's not recommended that the narrow bracket is used when cutting the top of a hedge or verge as this may expose the cutting flail and therefore increase the risk of debris or objects being ejected.



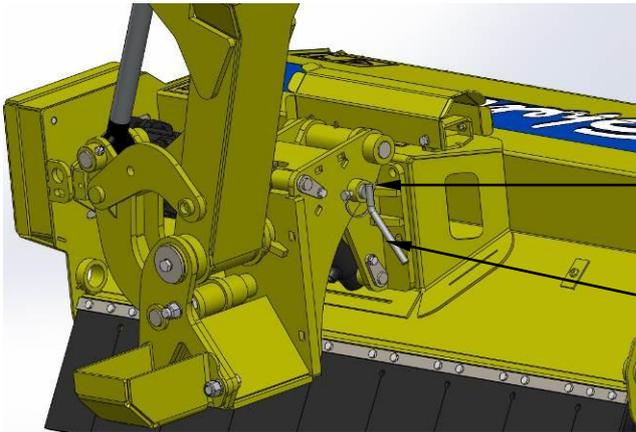
Beware of showering debris over tractor cab.



Narrow lane bracket in its fully closed position

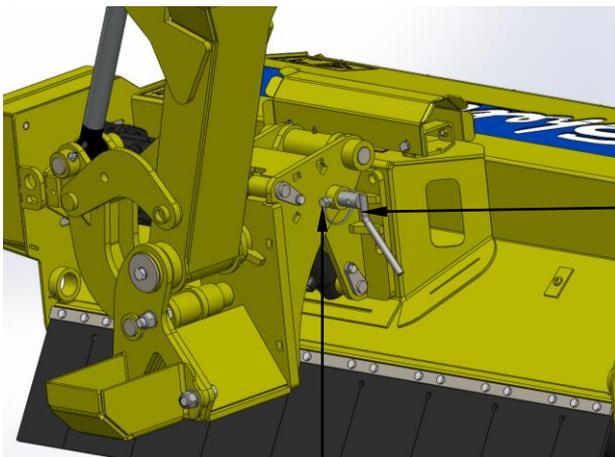


Narrow lane bracket in its fully extended position rotated 53 degrees



When the narrow lane bracket is not being used it can be locked in its fully closed position by inserting the locking pin using the hole nearest the pin handle.

Locking pin



To unlock the narrow lane bracket with draw the locking pin, then fit the retaining pin in the locking pins second hole.

Retaining pin

## 7.17 DEBRIS BLOWER KIT



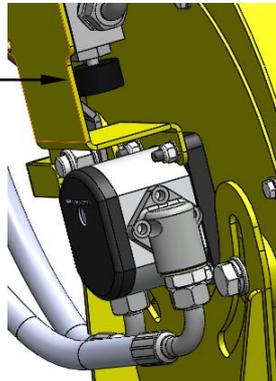
See section 2.7 for accident prevention when operating.

A debris blower kit can optionally be fitted at the rear of the Powerblade. The blower is powered from the tractor hydraulics.

The return oil must go directly through a free flow connection i.e., filler plug. Do not use a quick release coupling, through a spool valve on the return line.



Set the valve to fully open, fully anti-clockwise



To ensure the fan is running smooth turn the tractor spools flow down to between 20 – 30 l/min or if the fan blower is hunting turn the tractor spool flow down until it runs smooth. Excessive tractor flow may cause heat build-up for both the tractor and the debris blower.

Check the fan speed is running at 2500rpm optimum (2800rpm Maximum). Adjust the valve to obtain the correct speed then lock off.



Ensure PTO disengaged when adjusting the valve during set up of the debris blower valve.



Ensure that both hoses are correctly connected before operating the blower.

The debris blower is suitable for clearing cuttings from the public highway or when on hard standing areas. The exit shoot can be angled for best affect. It's recommended that the blower is used only on the final pass and is not used continuously. Continuous use may cause overheating and dramatically shorten the life of the hydraulic components.

To operate use the tractor spool controls (see tractor operator manual).



### 7.18 OVERHEAD POWER LINES (OHPLs)



See section 2.7 for accident prevention when operating.

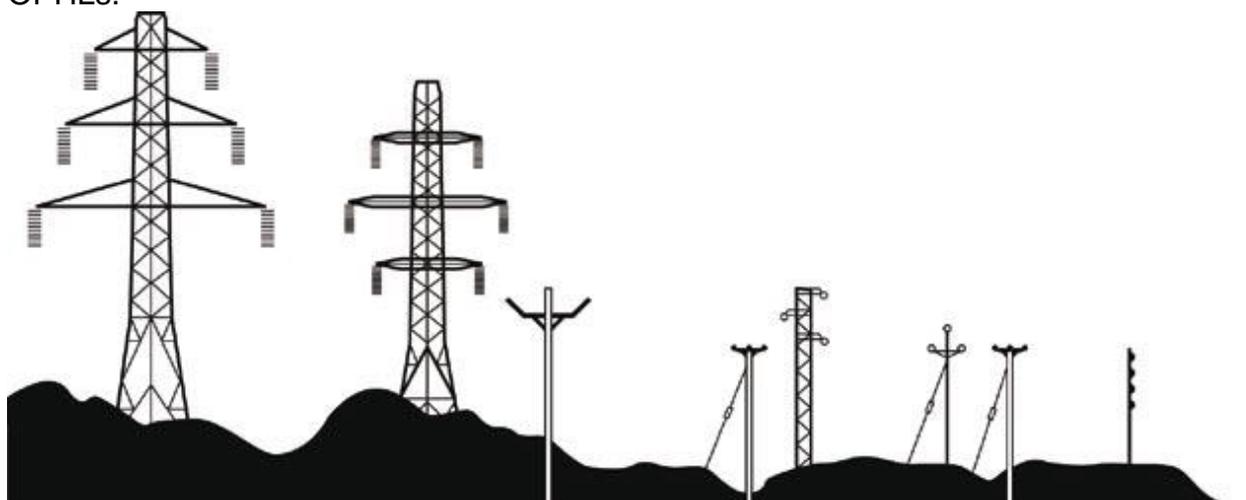
The operator should always take care to minimise the height of the machine in its transport position. The operator should also be aware of any obstructions overhead, such as power line, telephone lines or bridges. Before starting out on a journey it's recommended that the operator measures the highest point of the tractor and trimmer combination (this may be different depending on tractor make or model) and can even change depending on the position the Powerblade is being carried on the tractor 3 point linkage.

When working near OHPLs and outlines there is high risk of electric shock. There is also high risk of flashover or arc (electricity can jump across gaps) even if you do not contact the wires but are just working close to them (the higher the voltage the larger the gap which electric can jump). Anyone contacting the machine or equipment in these circumstances risks a serious or fatal electric shock.

OHPLs typically carry electricity at voltages from 11kV to 400kV. These wires are typically not insulated (bare) cables. The height of these lines varies depending on the voltage being carried. Lowest height OHPLs are those carrying 11kV to 33kV at a minimum height of 5.2 meters above ground.

**600 trimmers are capable of reaching higher than 6.5 meters which means there is high risk of the machine being able to contact the wires.**

See below the minimum heights above ground level and the exclusion zones for OPHLs.



275 or 400 kV  
Minimum height  
7m (275kV) and  
minimum height  
7.3m (400kV)

132kV  
Minimum height  
6.7m

33kV      11kV      low voltage  
← Minimum height 5.2 m →

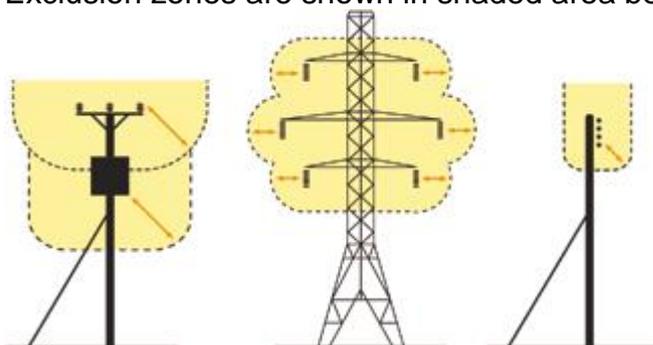
**Exclusion  
zone 7m**

**Exclusion  
zone 6m**

**Exclusion  
zone 3m  
11 – 33 kV**

**Exclusion  
zone 1m**

Exclusion zones are shown in shaded area below.



Exclusion  
zones for  
pole with  
transformer

Exclusion zone  
high voltage  
(HV)

Exclusion zone  
low voltage (LV)



Never allow any part of the machine to enter the exclusion zone.

Operation of any part of the Powerblade or tractor within 10 meters horizontally of an OHPL is not recommended. However if you cannot avoid doing so and the lines cannot be made dead the operator should perform a risk assessment and agree a safe system of work while ensuring to keep clear of all exclusion zones.

- Understand when working near OHPLs there is high risk of electric shock and also high risk of flashover or arc.

- Contact the local distribution network operator (DNO) who can advise on line heights, minimum vertical clearances distances and precautions to take.
- Find out the maximum height and maximum vertical reach of your machine (see section 3) before working near power lines.
- Find out the routes of all OHPLs within your working area.
- If in doubt DO NOT work near overhead power lines.

**If you come into contact with an OHPL**

- Stay in the cab of the machine and lower any raised parts in contact with the line or try to drive the machine clear, if you can.
- Inform the DNO immediately (display the telephone number in the cab or keep it on your mobile phone).
- Electrocutation is possible if anyone touches both the machine and the ground at the same time. If you need to get out jump well clear so that no simultaneous contact is made between you, the vehicle and the ground. Do not touch any wires. Stay clear and warn others not to approach.
- Get the DNO to disconnect the supply. Even if the line appears dead, do not touch it, or any part of the machine. Contact with the line may cause the power supply to trip out temporarily and it may be reconnected and re-energised automatically, without warning.
- Never touch an overhead line that has been brought down by machinery, or has fallen, eg in a storm. Do not try to disentangle equipment, until you have received confirmation that the line has been de-energised and made safe.
- 

See 'Health & Safety Executive' website for the following website address showing more information relating to overhead power lines

<http://www.hse.gov.uk/electricity/information/overhead.htm>.

## SECTION 8:

## MAINTENANCE AND STORAGE



Refer to section 2 for safety procedures.

### 8.1 LUBRICATION



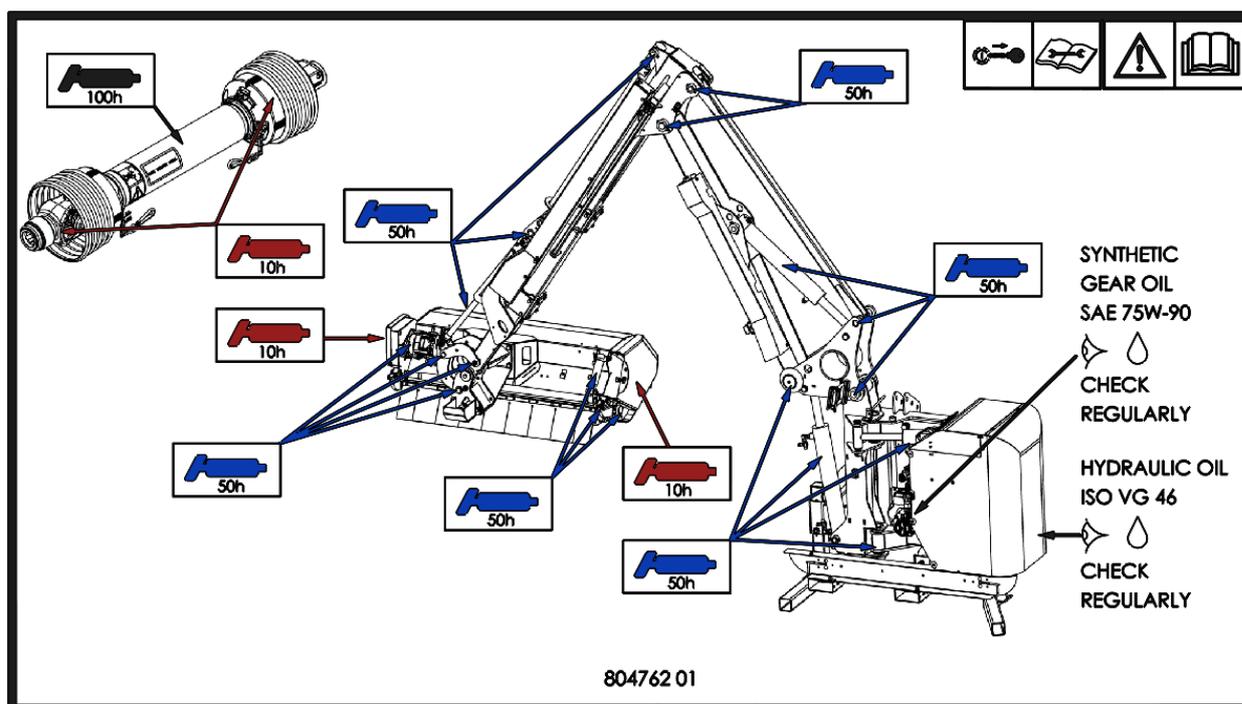
Refer to section 2.10 for accident prevention when servicing / adjusting the machine.

Both rotor bearings should be greased every 10 hours (daily). All other grease nipples at the various pivots of booms, cylinders and roller bearings should be greased every 50 hours (or weekly).

Brand of grease recommended: Total multis complex EP2 grease.

The telescopic wear pads can be lightly greased if desired. If upon extending and retracting the telescopic outer boom movement is not smooth lightly grease the wear pads. Note that the telescopic cylinder does not need regular greasing as it does not articulate.

The following transfer will be found on the machine –



### 8.2 PTO SHAFT



Refer to section 2.5 for accident prevention when using the PTO shaft

Grease both universal joints every 10 hours, or daily. Every 100 hours, or every 2 weeks, separate the telescoping members and grease along the length of the inner shaft.



### 8.3 GEARBOX



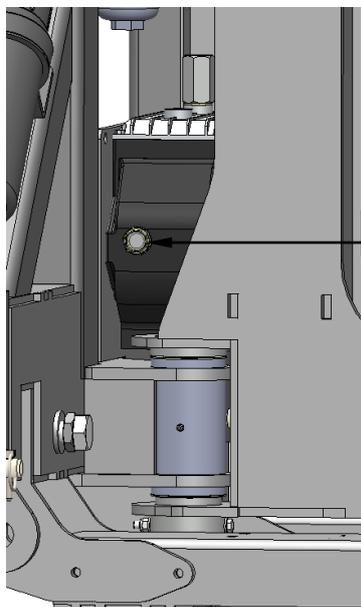
Refer to section 2.10 for accident prevention when servicing / adjusting the machine.

The gearbox is prefilled with a Synthetic gear oil, grade SAE 75W-90.

Brands of oil recommended are – Total SYN FE 75W90, BP Energear SHX SAE 75W-90 or Mobilube SHC SAE 75W-90.

The gearbox capacity is 1.75 litres. Gearboxes should be drained and then refilled with new oil after the first 50 hours and then every 1000 hours, or 2 years of use.

Check gearbox oil level regularly, a sight glass is fitted on the side to facilitate this.



Sight glass for checking gearbox oil level

### 8.4 CARE OF HYDRAULICS



See section 2.6 for accident prevention when using the hydraulic system.

Hydraulic component life can be radically shortened by contamination, overheating or cavitation.

To minimise contamination – Ensure that any oil, containers and funnels used to top up the system are scrupulously clean and that the filler area is cleaned thoroughly before removing the cap. Follow the stated change intervals for the return filter. When undertaking repair or servicing keep all components scrupulously clean. Ensure the filler cap and breather are intact and always kept in place (moisture is a contaminant as well as dirt).

To minimise overheating – Do not operate the machine above 540rpm PTO speed. Avoid stalling the rotor, or operating the cylinders against their end limits, as in each case large amounts of heat will be generated across the relevant relief valve.

To minimise the risk of cavitation – Ensure the oil level is maintained. Limit the PTO speed when oil is cold. Ensure pump suction components are sound and tight, hose is not squashed or kinked. Make smooth and limited changes to PTO speed. Cavitation is usually accompanied by unusual noise: since cavitation can very rapidly ruin a pump it is suggested that the machine is stopped immediately if noises are heard.

## 8.5 HYDRAULIC OIL



Refer to section 2.6 for accident prevention when using the hydraulic system

The tank is standardly prefilled with 'Total Equivis 46' an ISO VG 46 mineral hydraulic oil. The oil tank holds 230 litres. Check the oil level regularly, a sight glass is fitted to facilitate this.



If a biodegradable oil is to be use, please contact Shelbourne Reynolds Ltd with the oil specification to check suitability.

The interval at which the oil should be renewed will depend on the way in which the oil is worked and how well it is looked after. It will eventually break down due to the effects of contamination, oxidisation and condensation. These are caused by dirt getting into the system, overheating and moisture ingress. Contamination can cause the oil to become discoloured; as will oxidisation, but in the latter case along with a burnt smell. Condensation will tend to give the oil a milky appearance.

In order to get the best life from the oil: only add clean oil, from clean containers and with a clean funnel. Renew the return filter at the specified interval and clean the filler cap area before removal. Avoid pushing the machine beyond its capacity, as this generates large amounts of heat at the relief valves. Ensure that the filler cap and breather unit are intact and always kept in place.

## 8.6 FILTRATION

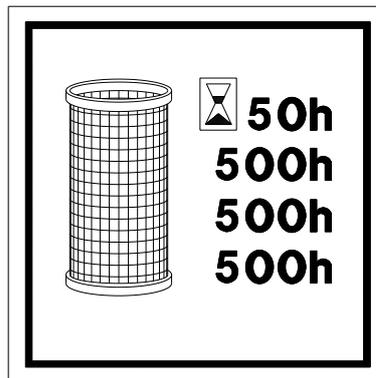


Refer to section 2.6 for accident prevention when using the hydraulic system

The machine is equipped with a suction strainer, situated in the bottom of the tank. When the oil is changed, or if the symptoms of cavitation are suspected (see Section 7) clean the suction strainer.

A return filter is fitted to the machine, which is located at the top of the hydraulic tank. This must be changed after the first 50 hours and then subsequently after every 500 hours. Note that if the filter is allowed to become clogged then the oil will bypass the filter (to avoid the danger of the filter bursting) and allow contaminants into the tank and hence into the system components.

If another hydraulic component has failed then the return filter should also be renewed forthwith.



## 8.7 HYDRAULIC HOSES



Refer to section 2.6 for accident prevention when using the hydraulic system

Check the hose ends and other hydraulic connections regularly to ensure there are no leaks.

Check the hoses themselves regularly to ensure there is no damage to the sheathing; if this has exposed the steel braiding it should be replaced. Damaged hoses should be replaced, as there is a danger it could burst.

When working on the hydraulics, care must be taken to ensure that any connections which are broken are remade in the same way; to ensure the safety of components and that the movements of the machine remain consistent and logical. Ensure that any replacement hose is of the same pressure rating as the hose it replaces. Always use 2 spanners when tightening hoses.

Recommended torque settings for hose nuts:

SIZE (BSP)	NUT TORQUE SETTING			
	Min		Max	
	Nm	lbf-ft	Nm	lbf-ft
1/4"	15	11	18	13
3/8"	26	19	31	23
1/2"	41	30	49	36
5/8"	50	37	60	44
3/4"	70	52	80	59
1"	105	77	125	92

### 8.8 ACCUMULATOR SAFE REMOVAL (if fitted with Lift float)



Refer to section 2.6 for accident prevention when using the hydraulic system

The accumulator must be pressurised for the Lift float to function correctly. If the tap has been moved to the de-pressurised position the head will constantly drop to the ground even if the Lift float is not engaged.

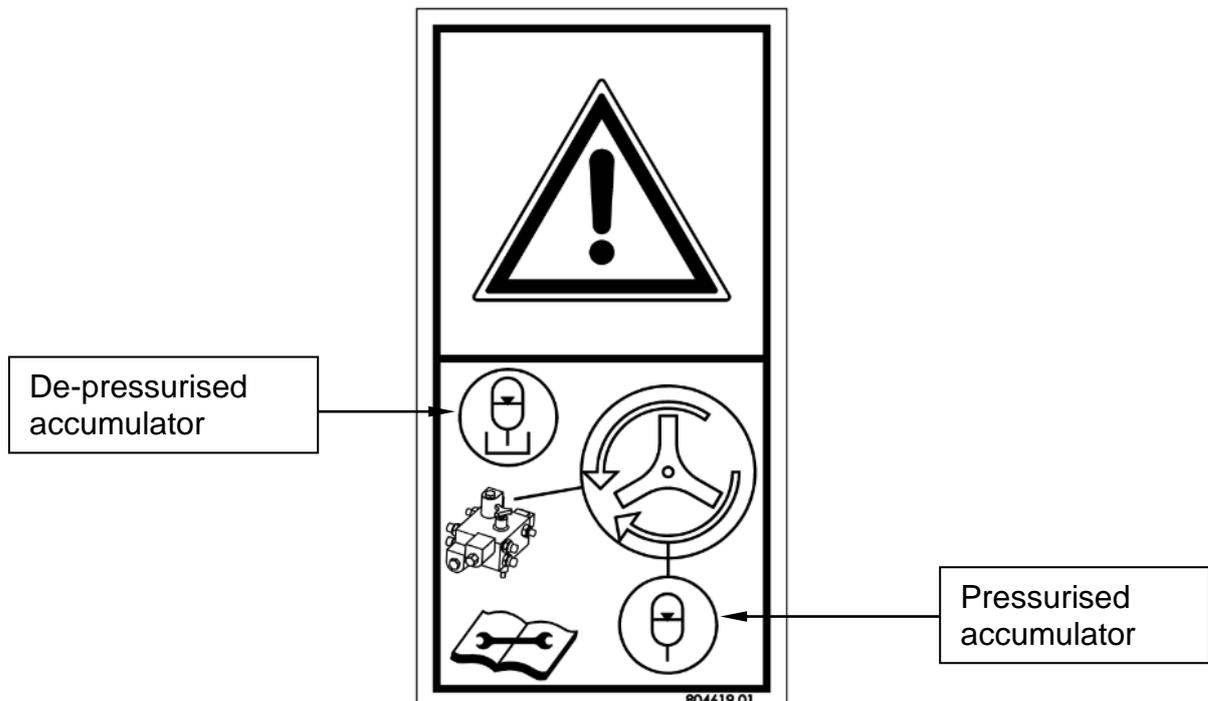


Ensure trimmer head is positioned on the ground before de-pressurising the accumulator.



Ensure to de-pressurise the accumulator for safe removal of it or if disturbing the lift cylinder hoses..

See below shows the accumulator tap position located in the front of the main trimmer frame.



## 8.9 CARE OF THE ROTOR



See section 2.7 for accident prevention when operating.

Damage to the rotor can be costly to rectify. It undergoes a series of machining and balancing operations to ensure that it will run smoothly.



Never operate at a speed greater than 540 rpm at the PTO.

It is unwise to use the tractor's 1000rpm setting at a reduced engine speed – because revving the engine would then over-rev the rotor by a considerable amount.



Always use the correct and genuine flails, bushes, bolts and nuts. Check them regularly and keep them tight

A missing flail will put the rotor considerably out of balance, to an extent, which will rapidly damage the rotor bearings and rapidly generate fatigue cracks in the head shell.

Shelbourne Reynolds cutting heads rotors use bolt on balance weight system. This means it's highly important that when replacing a flails or flail bolts, any balance weights or washers which are in place should be returned to their position. Failure to do this may result in the cutting head rotor becoming out of balance (see section 8.10).



If flail nuts, bolts, washers and balance weights have been removed without identifying of which position they've come off from refer to the rotor balance chart.

## 8.10 FLAIL HEAD



Refer to section 2.10 for accident prevention when servicing/adjusting the machine

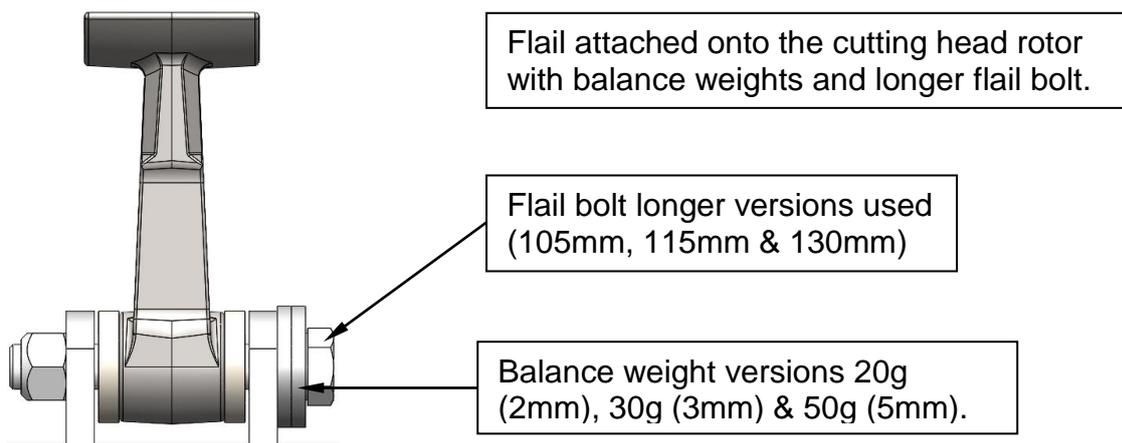
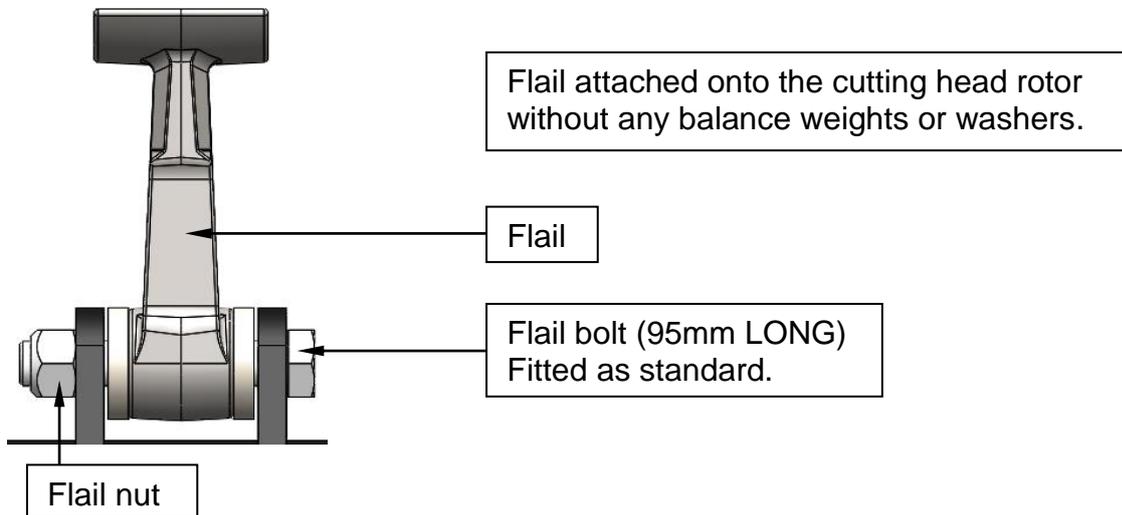
Check for loose, broken or missing flails every 4 hours. Also check the rotor, roller and other bolts on the head for tightness. Keep the flails reasonably sharp in order to give a neat finish and lessen power consumption.



Always use the correct and genuine flails, bushes, bolts and nuts. Check them regularly and keep them tight. Torque setting 270 Nm (200 lb/ft)

A missing flail will put the rotor considerably out of balance, which will rapidly damage the rotor bearings and rapidly generate fatigue cracks in the head shell.

To balance the rotor for smooth running, suitable weights are attached as necessary at the factory to relevant flail stations, even using slightly longer bolts. If flails are to be removed ensure that the weights and bolts are returned to the same end of the same station and with the bolt and nut in the same relative positions. These weights should only be discarded if the rotor is re-balanced. Every machine has a rotor balance sheet supplied in its manual canister from new. If the balance sheet is missing contact Shelbourne Reynolds who hold a copy and will re-issue the balance sheet upon quoting the machine's serial number.



Replace spacers, bolts and nuts exactly when replacing flails. The flails themselves should wear evenly and be replaced as a set. Should one flail be lost then the flail at 180°, one place along, should be renewed at the same time to preserve the balance.

When ordering new bolts you will need to identify how many bolts are of which length – ‘standard’ is 95mm long, with lengths of 105mm, 115mm and 130mm being used where balance weights are mounted.

When required to carry out maintenance on the inside of the cutting head ensure to position the cutting head in contact with the ground while still being able to access the flail area. Always perform a ‘Safe stop’ procedure before leaving the tractor cab.



Cutting head in contact with the ground allowing access to the flail area

Ensure that there is nothing wrapped around the rotor or roller.

600 Powerblade cutting head belt drive should have the belt drive tension checked daily. This requires the removal of the drive cover.



Loosen fixings to remove drive cover

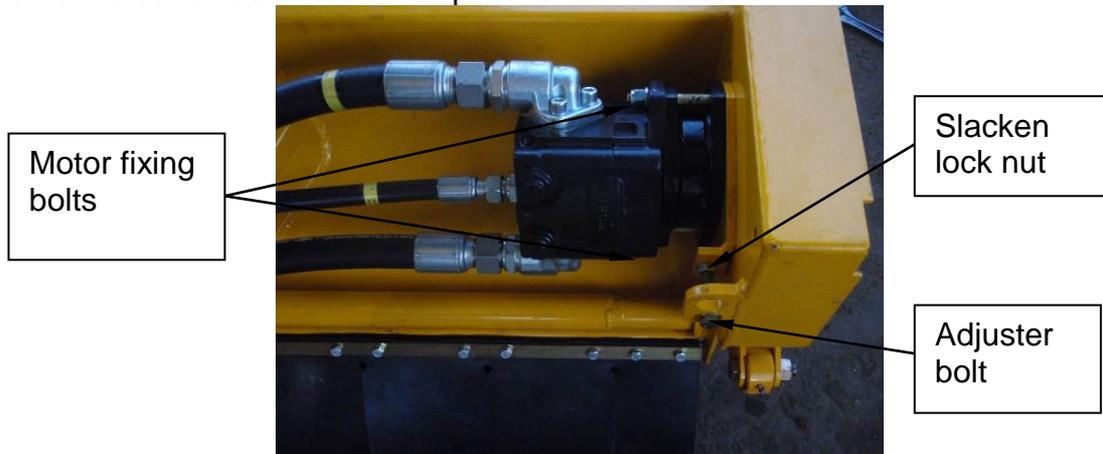
A load of 5 Kgs (10lbs) should give a deflection of approximately 9mm at the mid span point.



Apply load

To adjust, slacken the nuts at the motor fixing bolts and the adjuster locknut, then turn the adjuster bolt in the required direction. Then tighten lock nut and fixing bolts and replace the drive cover.

Note - drive cover fasteners are captive to the drive cover.



### 8.11 BUSHES AND PINS

Bushes protect all pivots that are subject to movements. In the unlikely event these are subjected to extreme wear they should be renewed promptly to reduce shocks, keep movements predictable and protect the underlying steel.

### 8.12 RECOMMENDED TORQUE SETTINGS FOR FASTENERS



Refer to section 2.10 for accident prevention when servicing/adjusting the machine

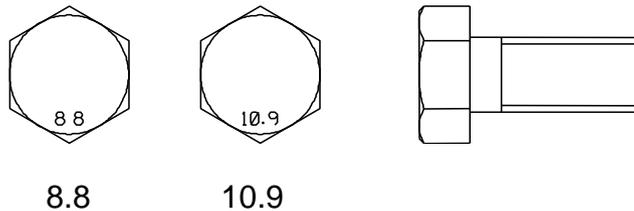
The table on the next page gives correct torque values for various sizes and grades of fasteners.

- Tighten all fasteners to the torques specified in the chart unless otherwise stated in this manual.
- Check tightness of fasteners periodically, using torque chart as a guide.
- Replace hardware with the same strength fastener.
- Torque figures are valid for non-greased or oiled threads and heads unless otherwise specified. Do not grease or oil fasteners unless specified in this manual. When using locking elements, increase torque values by 5%.

## METRIC FASTENERS (COARSE / STANDARD THREAD)

THREAD DIAMETER.	WRENCH SIZE (mm)	BOLT TORQUE / GRADE*			
		8.8		10.9	
		lbf-ft	Nm	lbf-ft	Nm
M5	8	4	6	7	9
M6	10	7	10	11	15
M8	13	18	25	26	35
M10	17	37	50	52	70
M12	19	66	90	92	125
M14	22	103	140	148	200
M16	24	166	225	229	310
M20	30	321	435	450	610
M24	36	553	750	774	1050

\* Torque categories for fasteners are identified by their head markings



Note: Cutting head flail uses M16 higher grade fine threaded bolt which requires a torque setting of 270 Nm (200 lb/ft).

### 8.13 STORAGE



Refer to section 2.12 for accident prevention when cleaning and storing the machine

Clean the machine thoroughly, making sure that high-pressure water does not contact bearings, seals or electrical components. Avoid washing paintwork at very close range or with very high pressure.

Release the tension in the drive belts, but replace the drive cover to keep the light out.

The machine should be stored undercover, to protect it from the effects of sun and rain. Make any necessary repairs and then apply grease to all grease points until fresh grease shows. Also, apply a layer of grease to all unprotected surfaces that are prone to corrosion, in particular any exposed hydraulic cylinder rods. (This grease should be carefully removed prior to the next use of the machine, as it will contain sufficient dirt to damage the cylinder seals.

Disconnect and remove the electric joystick control unit and store in a safe secure place. Wrap control levers, in plastic sheeting (NOT fertiliser bags) and seal with tape. Ideally put in a dessicant bag to remove moisture.