

FBO2800

OPERATORS MANUAL

ORIGINAL INSTRUCTIONS



FLLAAIL MOWER

Shelbourne Reynolds Engineering Ltd
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Issue 5 11/04/2023

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WARRANTY POLICY (ALL PRODUCTS)

MACHINE REGISTRATION

To qualify for the full benefit of the warranty set out in this warranty policy (the “**Warranty**”), it is the purchaser’s responsibility to ensure that the Shelbourne authorised dealer has completed the warranty registration details and that they are submitted to Shelbourne Reynolds Engineering Ltd. within 15 days from the date of delivery. If the warranty registration has not been completed and returned to warranty@shelbourne.com before the expiration of 15 days from the date of delivery, any claims made will be refused.

Using the machine implies the knowledge and acceptance of these warranty terms.

1. LIMITED WARRANTIES

1.5 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 were given in writing signed by a director of Shelbourne.

1.2 WARRANTY ON SPARE PARTS

Shelbourne warrants that any spare part or component supplied by Shelbourne or the Shelbourne authorised dealer 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 2 to 5 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. No claims will be considered for which sales invoices are not provided. 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.

1.3 WARRANTY ON DEALER STOCK MACHINES

No warranty is available or will be given on machines held in dealer stock for more than 6 months before sale.

1.4 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 EXTENDED WARRANTY - Only available on the following Trimmer & Powermix Ranges

Trimmer – 7000 & 8000 Series

Shelbourne will provide an extended Warranty on certain parts of the 7000 and 8000 Trimmer ranges for an additional 12 months, beyond the initial Warranty Period. This is indicated in the table below and is 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 and is on a parts only basis.

	Standard (0-12 months)	Extended (12-24 months)
Gearbox	✓	✓
Hydraulic Valves	✓	✓
Hydraulic Pump	✓	✓
Hydraulic Motor	✓	✓
Hydraulic Cylinders	✓	✓
Booms/Main Frame	✓	✓
PTO Shaft	✓	X
Electronic Controls	✓	✓
Hoses	✓	X
Joystick	✓	X

X = Not Covered ✓ = Covered

Note: Components not indicated have a Shelbourne standard 12 months warranty and are subject to all other terms and conditions of this warranty policy.

Powermix - All Models

Shelbourne will provide an extended Warranty on certain parts of all Powermix models for an additional 12 months and 24 months beyond the initial Warranty Period. This is indicated in the table below, and 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 and is on a parts only basis. It is contingent on the recommended service schedule outlined in the operator’s manual being followed and in the event of a claim proof of servicing will be required.

	Standard (0 - 12 months)	Extended (12 - 24 months)	Extended (24 – 36 months)
PTO Shaft	✓	X	X
Planetary Gearbox	✓	✓	✓
2 Speed Gearbox	✓	✓	✓
Hoses	✓	X	X
Scale Head	✓	✓	X
Electronic Controls	✓	X	X
Load Cells	✓	X	X
Valve Block	✓	X	X
Conveyor Belt	✓	X	X

X = Not Covered ✓ = Covered

Note: Components not indicated have a Shelbourne standard 12 months warranty and are subject to all other terms and conditions of this warranty policy.

2. 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 been subjected to alteration, modification, or fitment of non-genuine Shelbourne parts without the prior consent of Shelbourne.
- 4) wilful or 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 not been maintained and serviced fully in accordance with the details and maintenance schedule set out in the Shelbourne 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) the original purchaser failed to follow Shelbourne's oral or written instructions (including instructions in the Shelbourne Operators Manual) for the transportation, storage, commissioning, installation, use and maintenance of the machine or (if there are none) good trade practice regarding the same.
- 8) 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.**
- 9) the Shelbourne serial number plate on the machine has been removed or altered.
- 10) 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.
- 11) the product is attached to, connected with, or used in conjunction with, any other product which it is not compatible for use with (whether that other product is a Shelbourne or non-Shelbourne product);

In addition, it is the purchaser's responsibility to ensure that where the purchased Shelbourne product is to be attached to a tractor or other vehicle, the product falls within the carrying capacity as well as compatibility of the tractor or machinery which it is to be mounted on or to. Acceptance of an order and the supply of a product by Shelbourne does not indicate Shelbourne's approval of the purchaser's intended choice of tractor or machinery for installation, nor its compatibility with the purchased Shelbourne product.

The Warranty shall not apply in respect of any:

- 1) wearing items including but not limited to drive belts, conveyor belts, conveyor rollers, rubber flaps, flails, skids, bearings, pins, bushes, blades, pneumatic tyres, or any other items which are soil engaging or normal wearing or consumable items
- 2) hoses that have suffered external damage. 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 (unless carried out by Shelbourne).

3. 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) Labour cost;
- 11) Damage to carrying tractor;
- 12) Damage caused by exceeding the tractor OEM (original equipment manufacturers) specification for implement mounting and hitch capability; and
- 13) 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.

The liability of Shelbourne for any failure by the machine to comply with the Warranty shall be limited to repair or replacement of the product, or refund of the purchase price, of the product as set out in clause 4 of this warranty policy.

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.

4. WARRANTY CLAIMS

All claims must be submitted by a Shelbourne authorised dealer on behalf of the original purchaser, 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 discovery of the failure. The Shelbourne authorised dealer will be responsible for forwarding the claim to Shelbourne directly, and where appropriate, the Shelbourne authorised dealer may be responsible for dealing with warranty claims as directed by Shelbourne;
- 2) given Shelbourne (or the Shelbourne authorised dealer) a reasonable opportunity to examine the machine or the damaged or defective parts; and
- 3) if requested by Shelbourne (or the Shelbourne authorised dealer), returned the damaged or defective parts (via the original Shelbourne authorised dealer) within 30 days of notification of a defect, as long as the request by Shelbourne (or the Shelbourne authorised dealer) is made within that time frame, otherwise, within a time frame as specified by Shelbourne (or the Shelbourne authorised dealer).

then Shelbourne shall, at its option, repair or replace the defective parts, or refund the price of the defective parts or approve that the Shelbourne authorised dealer does the same.

5. 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 (in accordance with clause 7 of this warranty policy).

Repairs should only 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.

6. DAMAGE TO NEW MACHINES

All goods must be examined on receipt, please examine all machines and packages, if there is any damage or short shipment sign 'Damaged' or 'Detail any item not received' and notify both Shelbourne Reynolds warranty department by phone or E Mail and the carrier within 24 hours of any damage or missing parts. **No claims will be accepted after this time.**

7. CLAIMS PROCEEDURE

All claims must be submitted by a Shelbourne authorised dealer. Full information relating to the failure must be submitted using the claim form available on the Shelbourne website under the "Support" section, with all required fields completed with the relevant information and then emailed to warranty@shelbourne.com. Full information on warranty claim submission can be found set out in the warranty procedures document.

Where repairs are completed by a Shelbourne authorised dealer (or another repairer with the prior written consent of Shelbourne), then completed form(s) must be received by Shelbourne **NOT LATER THAN 15 DAYS** from the date of repair. When requested by Shelbourne, additional information or failed parts must be received by Shelbourne **WITHIN 15 DAYS** of claim submission.

If in exceptional circumstances a non-Shelbourne part is used for a repair, warranty reimbursement will be at no more than Shelbourne's standard dealer cost for the genuine part.

If parts are returned and the claim is subsequently rejected and you require the parts sent back to you, please notify Shelbourne within 7 days of receiving rejection notification.

Following examination of the claim and parts, Shelbourne will pay at their discretion, for any valid claim the invoiced cost of any parts supplied by Shelbourne and appropriate labour and mileage allowances if applicable. **Maximum mileage per claim is capped at 80 miles unless otherwise pre-authorised and confirmed in writing by the Shelbourne Reynolds Service Manager.**

For any claims submitted, which are intentionally misleading or fraudulent, Shelbourne shall be entitled to charge an appropriate hourly rate to recover any costs incurred as a result.

8. FAILED PARTS

Ensure that all hydraulic ports on returned components are drained of oil and securely and appropriately plugged with the caps that came fitted to the replacement components to avoid oil leakage and contamination entering the assemblies. Hydraulic cylinders must be cleaned of oil and fully retracted.

Electrical items being returned must be suitably packaged and protected to reduce the risk of transportation damage.

Due to strict time constraints enforced by our suppliers, you must immediately return any failed hydraulic components such as pumps, motors, cylinders, valves, and hoses; electrical components, such as solenoid valves, control boxes, sensors/switches; or driveline components such as gearboxes, PTOs, and bearings if the machine is still within its relevant warranty period.

Hydraulic parts such as pumps, motors and cylinders, and driveline parts such as gearboxes must be returned to us unopened and unexamined. With hydraulic valve blocks and electrical control boxes there is the ability to replace specific serviceable components within them, such as valve cartridges, spool assemblies, circuit boards, relays, switches, and joystick should the need arise to resolve a fault within.

Any parts replaced under warranty remain the property of Shelbourne. They must be returned to Shelbourne on request. In all other cases, unless informed otherwise, they must be retained for a period of 90 days after such time they must be destroyed and rendered physically unusable and not sold or reconditioned for sale to a third party.

9. REIMBURSEMENT

All claims, to the extent which it has been agreed by Shelbourne that a refund will be made, will be settled with the Shelbourne dealer, by credit memo, within 30 days of acceptance of the claim.

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.

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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) Manuals are located through the Parts and Service section followed by Manuals and then to Flail Mower 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
	859900 01	MAN-19100	2.8m Flail Mower Assembly, Standard Parts

Flail Mower Serial Number

FBO

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 8599__ 01), This machine number is listed above or can be taken off the Flail Mower identification plate.

Looking down the page, select the relevant sub assembly that your required part falls within. Sub-assemblies start from 859_ _ _ 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- 85 _ _ _.

The list on the following page highlights the optional build kits that also make up your exact configuration of machine.

Sub-assemblies and optional build kits.

Non-current production highlighted

Tick	Part No.	Description
Flail Rotor		
	KIT-85000	2.8m Competition flail rotor assembly
	KIT-85001	2.8m Hammer flail rotor assembly
Skids		
	KIT-85002	Flat skid kit
	KIT-85003	Welded skid kit
	KIT-85008	Welded skid sub assembly (thrown object type)
Headstock		
	KIT-85004	Bi-directional, offset headstock kit
Transfers		
	KIT-85005	FBO2800 Transfer kit
Nose		
	KIT-85006	Front nose and rubber sub assembly
Extra Options		

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:

FLAIL MOWER

MODEL:

FBO

TYPE:
MACHINE No.:

SERIAL No.:

FBO

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



Neil Smith
Director

Place:

Stanton, England.

Date:

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CONTENTS

SECTION 1 INTRODUCTION

- 1.1 FORWARD
- 1.2 IMPROVEMENTS AND CHANGES
- 1.3 SERVICE PARTS
- 1.4 MACHINE IDENTIFICATION

SECTION 2 SAFETY PROCEDURES

- 2.1 ACCIDENT PREVENTION
- 2.2 SAFETY SIGNS
- 2.3 ACCIDENT PREVENTION BEFORE STARTING
- 2.4 ACCIDENT PREVENTION WHEN COUPLING AND UNCOUPLING TO THE TRACTOR
- 2.5 ACCIDENT PREVENTION WHEN USING THE PTO SHAFT
- 2.6 ACCIDENT PREVENTION WHEN USING THE HYDRAULIC SYSTEM
- 2.7 ACCIDENT PREVENTION WHEN OPERATING
- 2.8 ACCIDENT PREVENTION WHEN REMOVING A FOREIGN OBJECT/BLOCKAGE
- 2.9 ACCIDENT PREVENTION WHEN LEAVING THE MACHINE
- 2.10 ACCIDENT PREVENTION WHEN SERVICING/ADJUSTING THE MACHINE
- 2.11 ACCIDENT PREVENTION WHEN TAKING ON PUBLIC ROADS
- 2.12 ACCIDENT PREVENTION WHEN CLEANING AND STORING THE MACHINE
- 2.13 NOISE EMISSIONS
- 2.14 PROPER USE
- 2.15 NO LIABILITY FOR CONSEQUENTIAL DAMAGE

SECTION 3 SPECIFICATION AND DESCRIPTION

- 3.1 DESCRIPTION
- 3.2 INTENDED USE
- 3.3 TECHNICAL SPECIFICATION
- 3.4 TECHNICAL SPECIFICATIONS OPTIONS

SECTION 4 HANDLING AND TRANSPORTATION

- 4.1 UNLOADING/LOADING
- 4.2 TRANSPORTATION

SECTION 5 PREPARATION FOR USE

- 5.1 CHOICE OF TRACTOR
- 5.2 PREPARATION OF THE FLAIL MOWER BEFORE ATTACHMENT
- 5.3 PREPARATION OF THE TRACTOR BEFORE ATTACHMENT
- 5.4 ATTACHMENT – TRACTOR TO FLAIL MOWER
 - 5.4.1 PRE COUPLING CHECKS/ADJUSTMENTS
 - 5.4.2 LINKAGE POSITION SELECTION
 - 5.4.3 COUPLING TO THE FRONT LINKAGE
 - 5.4.4 COUPLING TO THE REAR LINKAGE
- 5.5 ADJUSTING AND CONNECTING THE PTO DRIVE SHAFT
- 5.6 CONNECTING THE HYDRAULIC HOSES
- 5.7 DRIVE PULLEY CONFIGURATION AND BELT TENSION
- 5.8 FINAL ATTACHMENT AND RUN UP
- 5.9 REMOVAL
- 5.10 REATTACHING THE MACHINE

SECTION 6 OPERATION

- 6.1 TRANSPORTING WITH THE TRACTOR
- 6.2 STARTING THE FLAIL SHAFT ASSEMBLY
- 6.3 STOPPING THE FLAIL SHAFT ASSEMBLY
- 6.4 WORKING ON THE HIGHWAY
- 6.5 USING THE FLAIL MOWER
- 6.6 CUTTING MATERIAL
- 6.7 FLAIL MOWER ADJUSTMENTS
 - 6.7.1 ADJUSTING THE CUTTING LENGTH
 - 6.7.2 ADJUSTING THE REAR MATERIAL GUIDE
- 6.8 REMOVING FOREIGN OBJECTS OR A BLOCKAGE FROM THE MACHINE

SECTION 7 MAINTENANCE AND STORAGE

- 7.1 LUBRICATION
- 7.2 PTO SHAFT
- 7.3 GEARBOX & EXTENSION
- 7.4 HYDRAULIC HOSES
- 7.5 CARE OF THE FLAIL SHAFT ASSEMBLY
- 7.6 BELT TENSION
- 7.7 RECOMMENDED TORQUE SETTING FOR FASTENERS
- 7.8 STORAGE

SECTION 1: INTRODUCTION

1.1 FOREWARD

This manual will assist the operator in using the Shelbourne Reynolds Bi-directional, offset Flail Mower 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 shell, near to the drive end on the rear side.

<i>Shelbourne</i>	
REYNOLDS	
SHELBOURNE REYNOLDS ENGINEERING LTD, STANTON, SUFFOLK, UK. IP31 2AR. TEL: +44 (0)1359 250415 WWW.SHELBOURNE.COM	
CE	
SERIAL NO.	<input type="text"/>
TYPE M/C NO.	<input type="text"/>
FOR SPARES QUOTE BOTH SERIAL NO. AND MACHINE NO.	
DESIGNATION	<input type="text"/>
YEAR	<input type="text"/>
MAX TOTAL WEIGHT	<input type="text"/>
UNLADEN WEIGHT	<input type="text"/>
FRONT AXLE LOAD	<input type="text"/>
REAR AXLE LOAD	<input type="text"/>
DRAWBAR MAX LOAD	<input type="text"/>
SHELBOURNE REYNOLDS INC. PO BOX 607, COLBY, KANSAS 67701, USA. PH: 785-462-6299	

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 Flail Mower.

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 Flail Mower and in particular, pay attention to how to perform an emergency stop.

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 problems: The procedure is as follows:

- Put the handbrake on.
- Make sure the 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 Shelbourne Flail Mowers also ensure to follow the steps below:

- Stop the tractor's forward or backward movement, immediately.
- Stop the PTO driving the Flail Mower, allow time to totally stop.
- Lower the mower carefully to the ground.


CAUTION

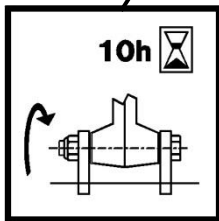
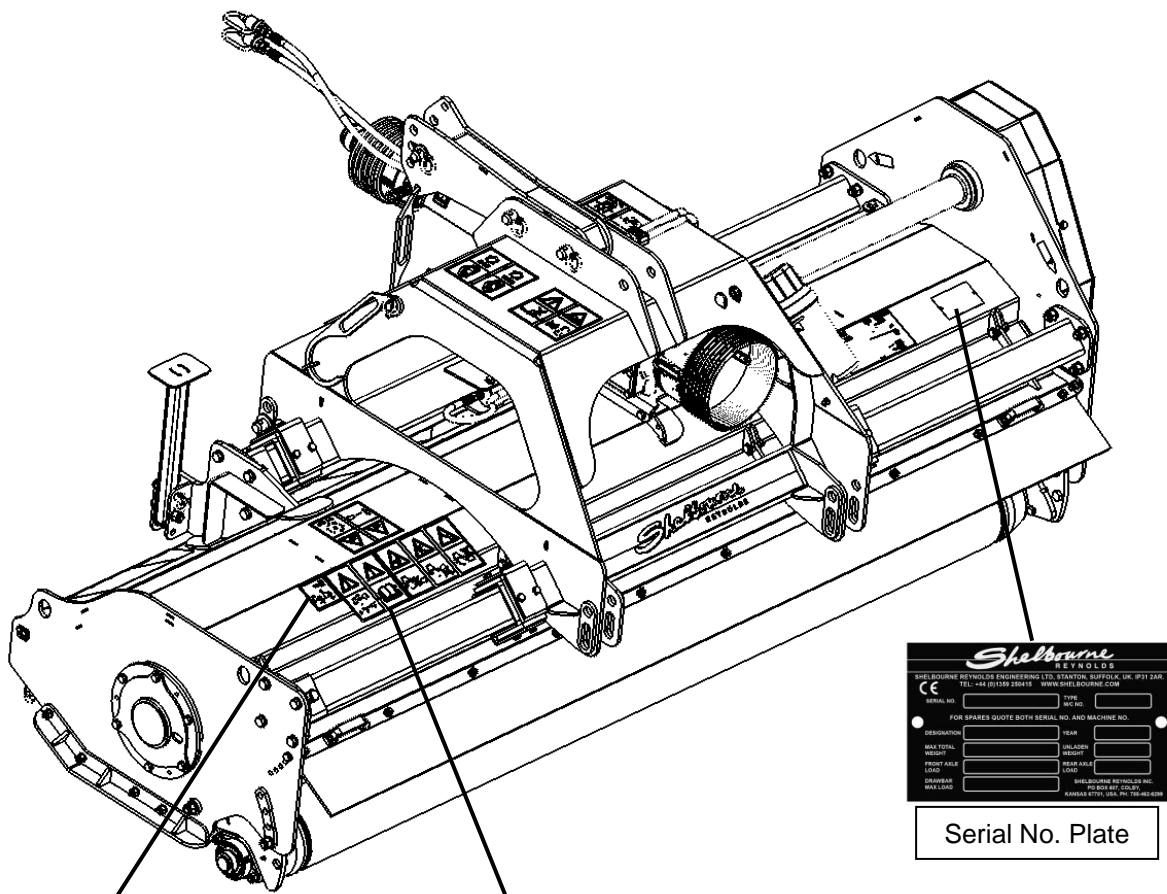


This symbol will appear throughout this manual whenever your safety, the safety of others or the machinery, is involved.

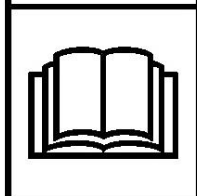
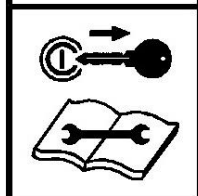
2.2 SAFETY SIGNS

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.

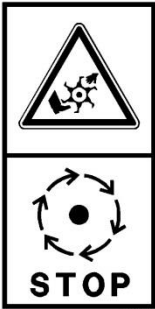


850159 01
Check flail bolts
for tightness
every 10 hours

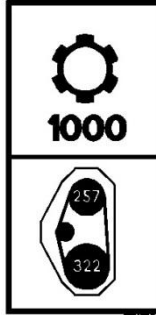
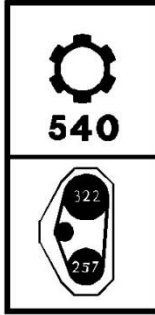


TNF-0011
Stop the engine and
remove the key from
the tractor's ignition
before carrying out any
work on the machine.

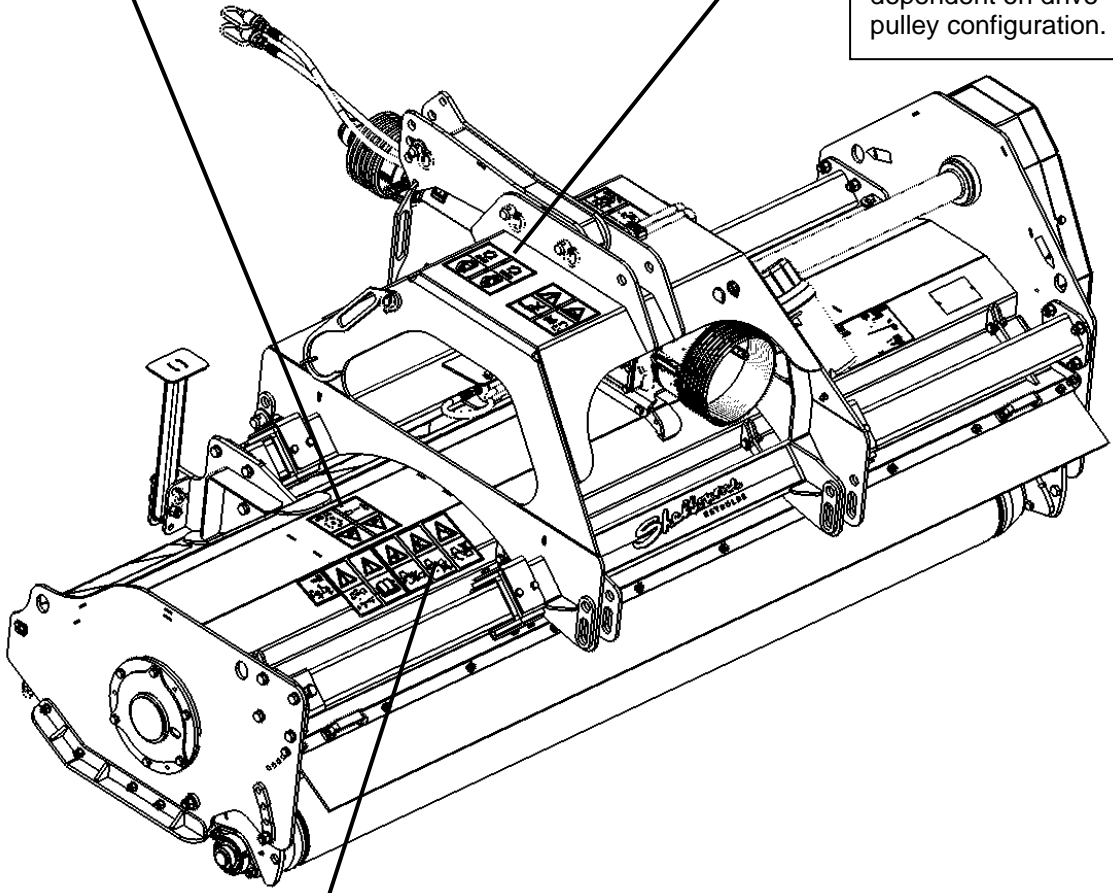
Carefully read the
manual before
using/operating the
machine.



850162 01
 Danger from flying debris. Ensure personnel are a safe distance from the machine.
 Never reach into flail area. Allow machine to stop before working on it. Danger of cutting.



850157 01
 PTO rotational speed must not exceed 540 or 1000rpm dependent on drive pulley configuration.



850156 01
 Stay clear of tractor/machine when coupling up or uncoupling. High risk of crushing.
 Do not work underneath the flail mower when attached to a tractor or when moving by hanging from the sling points. High risk of crushing.
 Do not stand or ride on the machine. High risk of falling.

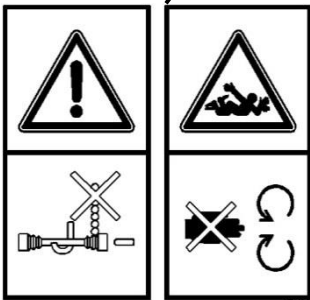
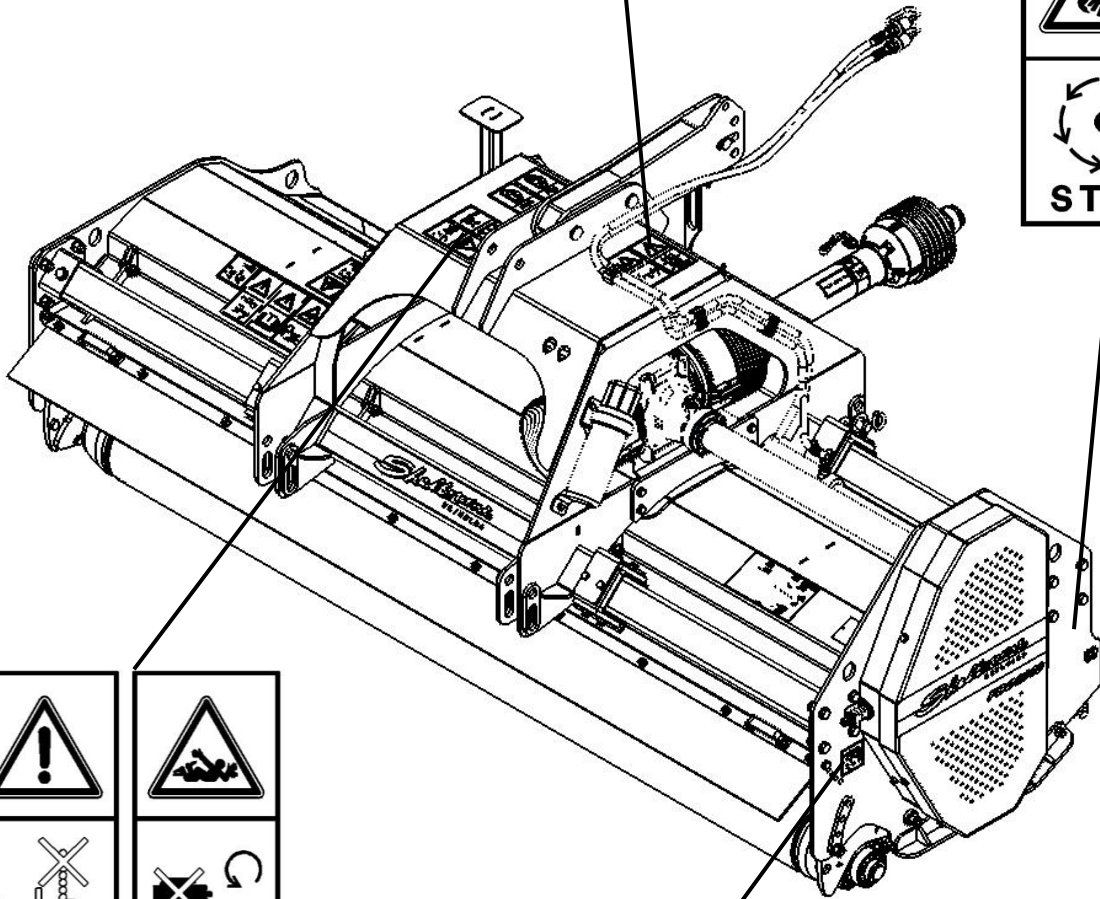
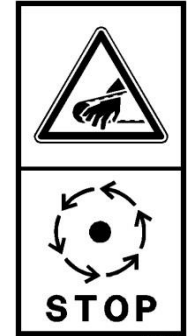
850160 01

Hydraulic oil is dangerous when under pressure and can be injected into the body. Always ensure hoses are in good order before operating.

Ensure that machine hydraulics are not exposed to more than 210 bar of pressure. There is a risk of explosive damage to hoses and other components.



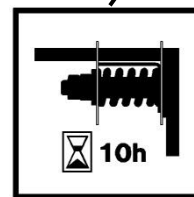
800218 01
Allow machine to stop before adjusting belts. Danger of trapping or entanglement.



850161 01

Do not hang PTO shaft by the safety chain attached. Use the provided bracket.

Ensure safety chains are fitted and attached. Do not enter PTO area whilst in work. Danger of entanglement.



850158 01

Check the belt tension every 10 hours. Tension spring should equal the same length as the gauge behind the spring.

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.

Take care when moving around the machine, ensuring to be aware of surroundings at all times and not to slip, trip or fall.

Ensure bystanders are at a safe distance when moving the Flail Mower by overhead slinging.

If moving the Flail Mower 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.

Ensure transport for flail mower is suitably sized and weight is distributed evenly.

Take care when strapping or slinging the flail mower, ensuring not to slip, trip or fall. Do not climb over flail mower to access other parts.

Ensure that the machine is parked on a firm and level site.

Ensure that the tractor size and weight is suitable for the size and weight of the Flail Mower (See section 3 and 5).

Do not carry out any PDI work without appropriate PPE (Personal Protective Equipment), wear gloves, close fitting clothing 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.

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 Flail Mower is fitted with all safety curtains and guards and all 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 when a 'SAFE STOP' has not been performed and the tractor is stationary, the tractor is out of gear with the handbrake applied.

Ensure all tractor windows are closed at all times.

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

The Flail Mower may be used only if all safety devices, e.g. detachable guards, chain and rubber curtains, PTO guards etc.... are fitted correctly and in proper working order.

A 'SAFE STOP' should be performed before nuts and bolts are checked at regular intervals and tightened if necessary, ensure to tighten all nuts and bolts to the correct torque. Welds should also be visually inspected checking for cracks.

Ensure that no person is working on the Flail Mower or tractor.

Ensure there are no loose items inside the cab which could cause damage or injury such as pins or tools. Locate these items in an external tool box.

Always perform an inspection before starting.

Check that all observers are clear of the Flail Mower 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 Flail Mower or tractor.

Ensure to grease machine prior to use (See section 7). Ensure a 'SAFE STOP' has been performed and PPE is worn before greasing the machine.

Oil levels must also be checked prior to use (See section 7).

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

When not using the hydraulic services, lock off spool valves remotely if possible to ensure hydraulic services are not operated by mistake.

2.4 ACCIDENT PREVENTION WHEN COUPLING AND UNCOUPLING TO THE TRACTOR

The work of coupling and uncoupling the Flail Mower involves a high risk of injury. Use only the procedure described in section 5 for further information.

Ensure the Flail Mower is sitting stable on level ground and cannot roll backwards or forwards, before coupling and after uncoupling. The machine's stand may need to be required to ensure the mower is level when uncoupling, 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 Flail Mower and tractor. Warn bystanders by sounding the horn of the tractor several times.

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

When attaching to either a tractor's front or rear linkage, slowly drive the tractor towards the rear or front of the Flail Mower respectively – 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.

If visibility is poor from the tractor's cab or you are 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 is taken when removing hydraulic couplings from the tractor.

Connect the Flail Mower 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.

Do not exceed the maximum combined vehicle gross weight or the maximum permissible loading of the tractor's 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 Flail Mower 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 Flail Mower, 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).

Make sure that the tubes and guards both overlap by the prescribed distance when lifted to working height (See section 5).

Ensure that the PTO yoke locking pins/collar 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 Flail Mower when you switch on the PTO shaft.

The PTO shaft speed of the tractor must correspond with the maximum permissible rotational speed of the Flail Mower. 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.

Ensure a 'SAFE STOP' is performed immediately after discovering a leak in the hydraulic system and before fixing the leak.

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 Flail Mower and a 'SAFE STOP' has been performed.

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 are tight and in good condition.

The hydraulic system can operate at 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.

Spurting 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 Flail Mower is on the ground and the tractor has been turned off, with the hydraulic system depressurized before carrying out any work on the hydraulic system.

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 Flail Mower 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 Flail Mower may be used only if all safety devices, e.g. detachable guards, are fitted and in proper working order and that the tractor's doors and windows are shut.

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 Flail Mower. 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 Flail Mower in loose clothing that might get caught up and tie long hair back.

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

Only use the Flail Mower 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 Flail Mower 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.

Enter the field or area of work carefully and slowly after indicating intentions to other road users. If the gateway or entrance is unknown or not clearly visible, perform a 'SAFE STOP' and walk the area confirming the entrance, taking care not to slip, trip or fall. Always wear a seatbelt if possible and keep doors and windows closed when driving the tractor.

Survey the field or area of work before operating the machine to maximise the chance of identifying hazardous situations or foreign objects. Take care not to slip, trip or fall and wear suitable PPE and footwear for the task.

If a foreign object is discovered and requires to be moved, ensure correct PPE is worn and manual handling procedures are followed. Be aware of/cover sharp edges and do not carry heavy objects large distances by hand. If the foreign object is too large/dangerous to move, return with machinery or tools to move the object safely. Do not attempt to push the object out of the way with the tractor/flail mower!

Ensure to only use the machine for cutting materials within its capability (See section 6). Use this machine only for the tasks to which it's been designed to do.

One person should use the Flail Mower only. When the operator identifies someone approaching or is too close for their safety, the operator shall stop operating and perform a 'SAFE STOP' until the person is clear again.

Bystanders need to keep a safe distance from the Flail Mower and tractor while it is being operated. It may be necessary to put up signage warning the public of the dangers. If a bystander becomes too close to the machine perform a 'SAFE STOP'.

Ensure that bystanders are not standing in the driving/cutting line of the tractor/Flail Mower during operation or transportation.

No person may be allowed to ride on the Flail Mower.

If the hydraulic services do not need to be operated, remotely lock off if possible to prevent mistaken operation.

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

In the event of a malfunction, immediately cease operation and secure the Flail Mower and tractor in its stationary position. Malfunctions must be eliminated immediately. Stop and disengage PTO immediately to ensure that all power has ceased to the driveline. Ensure to then follow the 'SAFE STOP' procedure.

Do not go under or within any part of the Flail Mower 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. Ensure any guards are safe to handle before removing.

Always ensure the Flail Mower's flail shaft assembly is clear of obstacles or material and free to rotate prior to engaging the flail rotor.

Check that all observers are clear of the Flail Mower 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 Flail Mower.

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

Always operate the machine at the correct PTO speed (See section 5).

Always adjust the driving speed to suit the driving conditions. Avoid fast turning when driving uphill, downhill or across a slope. Ensure maximum control at all times and take care if passing a pedestrian or other road user on a public highway.

When working around objects such as trees, fences or electricity pylons take extra not to make contact.

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.

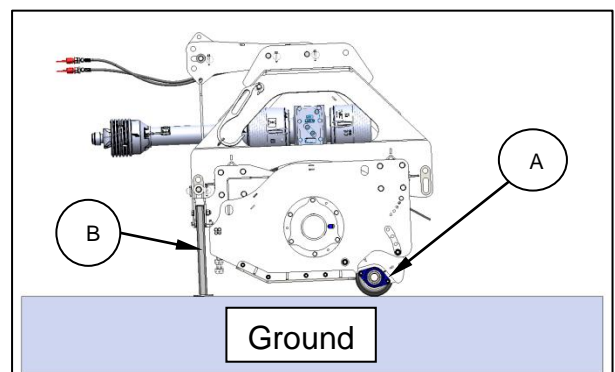
When intending to operate on highway verges consult the local Highways Department regarding notifications and approval, as rules and regulations will vary from area to area.

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

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

If there are any bystanders at a safe distance from the flail mower but still in a hazardous position regarding noise, perform a 'SAFE STOP' or ensure the bystander is wearing ear protection.

Always leave the Flail Mower in a safe position with the roller (A) in contact with the ground. If removing the Flail Mower from the tractor it may also be necessary to swing the stand (B) into position.



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

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, ensure that the Flail Mower is central to the tractor using the hydraulic offset function (See section 6).

Take care when exiting junctions on public highways especially when mounted on the front linkage.

Always replace all guards after any maintenance or after making any adjustments. Replace or repair any damaged or missing guards immediately.

Keep hands away from moving parts i.e. flail shaft assembly, hydraulic rams, and linkage. Do not reach into the Flail Mower or any area where components may be moving due to a risk of entanglement.

Keep a safe distance away from the Flail Mower as there is a risk of impact / crushing. Ensure to clear up any debris left in the working area as this may be a hazard and cause danger to others.

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

Keep children away from the Flail Mower 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.

Be aware that the rotor will take a considerable time to stop. Do not leave the tractor seat or drive onto a public highway until the rotor has stopped.

If a vibration is detected from the rotor perform a 'SAFE STOP' immediately. Sufficiently block the flail mower and inspect the rotor to find the cause of the vibration and fix before restarting the machine.

If operating in dry conditions regularly inspect the flail mower and tractor for material settling and building up particularly around areas which can get hot and cause a fire such as the flail mowers drive or tractor's engine/exhaust. If material has built up in these areas clean sufficiently, taking care not to be burnt by hot surfaces.

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 person.

Ensure that the tractor's PTO has been disengaged.

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

Ensure the Flail Mower 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.

Ensure loose fitting clothing is removed and long hair is tied back before attempting to remove the blockage.

Never attempt to work on the Flail Mower when it is raised in the air unless it has been sufficiently supported.

Ensure not to trap or entangle your fingers, hands, arms or any other body part if adjusting the roller to help clear the blockage. 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, remove the object from the machine with care, if in doubt use lifting apparatus.

The offending object may be sharp, remove 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 Flail Mower.

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 Flail Mower.

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 stand is securely locked in position (See section 4).

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

Ensure the Flail Mower 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.

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 Flail Mower, 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 Flail Mower is connected to a tractor while servicing follow the 'SAFE STOP' procedure before leaving the tractor cab to work on the machine, ensure the tractor's handbrake is applied and the transmission is placed in park.

Be aware of surroundings taking care not to slip, trip or fall and always keep a tidy workspace.

Always ensure the driveline and systems with oil have been left to cool down before undertaking any work on the machine. Wear correct PPE if parts are still warm to touch.

Take care when checking the tightness of fixings. If components are loose, evaluate if and where the part could fall and position yourself away from this area. If fixings are loose, tighten, taking care not to slip off the fixing.

The Flail Mower 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 person.

Be aware that the Flail Mower flail shaft assembly will overrun for a short time after the PTO has been disengaged.

Replace all guards after servicing.

Check the gearbox oil level regularly. If required to replace or add oil, ensure sufficient time is left for the oil to cool after working and correct PPE is worn. Use suitable funnels and containers to direct the oil flow and soak up any oil spills immediately.

Ensure to tighten all nuts and bolts to the correct torque (See section 7).

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

When removing a build-up of foreign material e.g. plastic, twine or wire from the mower, firstly follow the 'SAFE STOP' procedure. Pay particular caution while working, as the flail shaft assembly may move suddenly as the material becomes unblocked.

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

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

If it required to work on the hydraulic system, ensure sufficient time for the hydraulic oil to cool down. PPE should also be worn.

Ensure the safe disposal of any waste oil.

OEM replacement parts and accessories from Shelbourne Reynolds have been specially designed for use with the Shelbourne Reynolds Flail Mower. 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 Flail Mower 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.

When sharpening the flails, ensure power tools are in good working order and correct PPE is worn including ear protectors before undertaking the work. Anticipate in which direction sparks from sharpening the flails will go and position yourself away from them. Ensure to avoid sharp edges of the flails as these may cause cuts or lacerations.

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

Ensure flail shaft assembly 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.

The drive pulleys are heavy so take care when removing or refitting each pulley. Take care not to trap fingers or drop a pulley onto toes. See section 5 for the correct procedure on removing and refitting of the pulleys.

If checking the rotor bearings, ensure the flail mower is resting on the ground and perform a 'SAFE STOP'. Turn the rotor over by hand, 'feeling' for any irregularities. It should feel consistently smooth for the full rotation. Take care not to pinch hands or fingers or become entangled in rotating parts.

If checking the roller bearings, rest the flail mower on blocks so crushing is prevented but the roller can still be turned by hand. Perform a 'SAFE STOP' then 'feel' for irregularities when turning the roller over. It should feel consistently smooth across the full rotation. Take care not to pinch hands or fingers or become entangled in rotating parts.

2.11 ACCIDENT PREVENTION WHEN TAKING ON PUBLIC ROADS

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

The machine must be in a roadworthy condition.

Observe the maximum permissible width for road transport and if necessary, fit rear lights, flashing beacons or warning signs.

For transporting, move the Flail Mower centrally to the tractor and secure all rubber flaps, guards and covers so that they cannot cause injury or damage to other users of the public place.

It's recommended to disconnect hydraulic connections and the PTO driveshaft from the Flail Mower so that it cannot be inadvertently operated during road transport.

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 Flail Mower.

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 may 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 Flail Mower 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 is left on the public highway or pathways by cleaning the tractor/machine before leaving the field. Place signage on the highway warning of dirt/debris if necessary. Be aware of hot surfaces and sharp edges.

2.12 ACCIDENT PREVENTION WHEN CLEANING AND STORING THE MACHINE

Park the machine on a firm and level site

When unhooking the Flail Mower, 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.

Ensure the flail mower is stored so that the whole of the roller is in contact with the ground and that the stand is located in the park position to keep the flail mower level.

Store the PTO shaft by hanging the PTO on the supplied hook. Do not use the PTO guard restraining chains to hang or hold the weight of the PTO.

If the flail mower is left on the tractor to clean, ensure the mower is resting on the ground or sufficiently blocked and a 'SAFE STOP' has been performed.

It is recommended to use PPE (Personnel Protective Equipment), when removing dirt/debris from the machine.

Be aware of hot surfaces before cleaning the machine.

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.

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.

Take care not to wash off safety stickers. If safety stickers are washed off, replacements can be purchased through the Parts Department at Shelbourne Reynolds.

2.13 NOISE EMISSIONS

Sound pressure level measured at operator's seat in tractor cab.	Just tractor running. (Full operating speed)	Tractor window closed.	67 dB (A)
		Tractor window open.	77 dB(A)
	Tractor and Flail Mower running. (Full operating speed). (Front mounted)	Tractor window closed.	67 db(A)
		Tractor window open.	76 dB(A)
	Tractor and Flail Mower running. (Full operating speed). (Rear mounted).	Tractor window closed.	67 dB(A)
		Tractor window open.	85 dB(A)

Sound pressure levels measured all around the tractor and Flail Mower at a distance of 1 metre and a height of 1.6 metres, ranged from 84-95 dB(A) when mounted to the front linkage and 87-93 dB(A) when mounted to the rear linkage.

(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 Flail Mowers 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 Flail Mower is in technically perfect condition, that it is used properly 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 Flail Mower 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 Flail Mower. Any replacement parts and accessories not supplied by Shelbourne Reynolds have not been tested and approved by us. The installation and/or 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 Flail Mower is intended for managing vegetation on fields, verges, wasteland etc. Any uses other than those for which the machine is intended, such as stump-grinding or lifting, 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 Flail Mower 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 Flail Mower and are therefore not ejected dangerously. Failure to observe this may result in damage to the Flail Mower and/or injury to the operator/user and members of the public.

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

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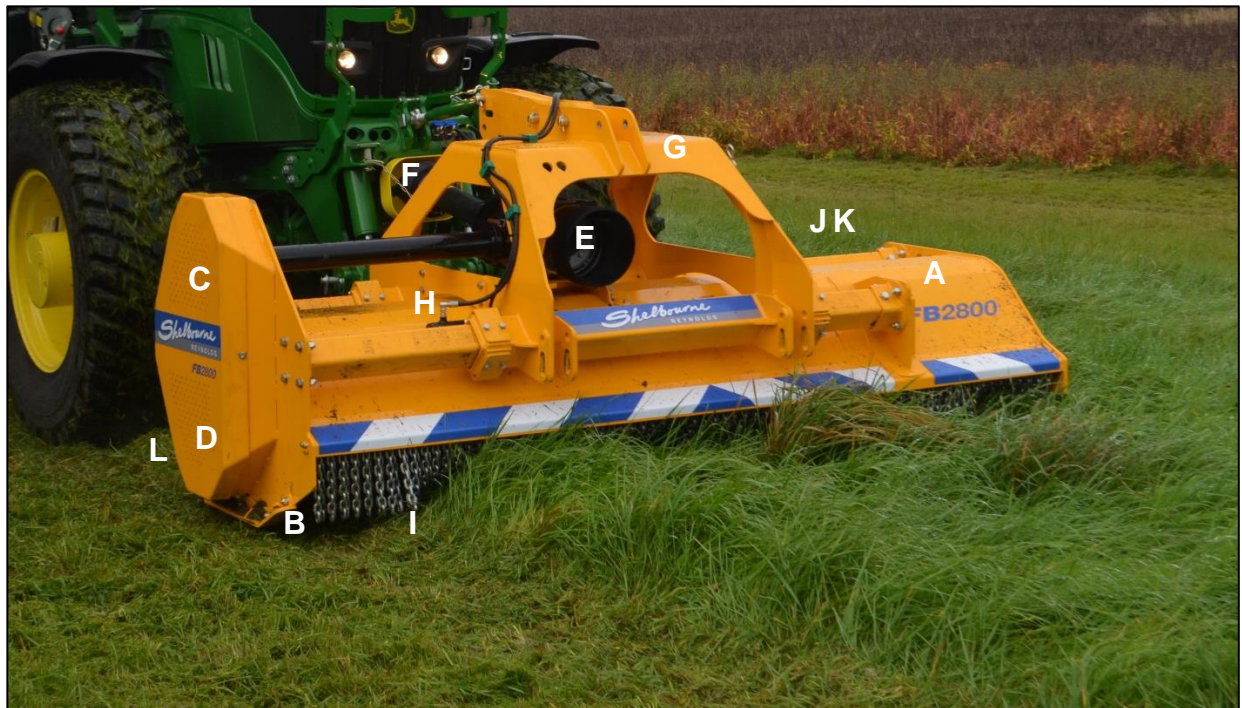
SECTION 3:

SPECIFICATION AND DESCRIPTION

3.1 DESCRIPTION

The machine consists of a rotating flail shaft assembly, which is mounted to the machine's chassis, which also carries the flail's drive system and sliding headstock which mounts to the tractor.

A double-skinned chassis (A) houses the flail shaft assembly (B) which consists of a series of flails bolted to a flail shaft. The flail shaft assembly is driven by the driving and driven pulleys (C&D respectively) which are driven by the gearbox (E) mounted to mower's chassis. The gearbox is driven by a PTO shaft (F) which connects to and is driven by the tractor. The Flail Mower mounts to the tractor by the headstock (G) which allows the machine to be mounted to the front or rear linkage of the tractor. The headstock also uses a hydraulic ram (H) to allow the Flail Mower to be offset by 600mm. A chain skirt (I) at the front of the machine and a rubber flap (J) at the rear of the machine stops or controls the flow of material in a safe manner. An adjustable rear material guide (K) can be opened to let a larger volume of material out or closed to increase the quality of mulching of the material being cut. An adjustable roller (L) can be raised or lowered to increase or decrease the cutting height of the Flail Mower.



A PTO operating at 540/1000rpm with a 1 & 3/8" SAE 6 spline shaft and rotating in a clockwise direction is required.

A double acting hydraulic spool valve is also required on the tractor to operate the offset facility.

3.2 INTENDED USE

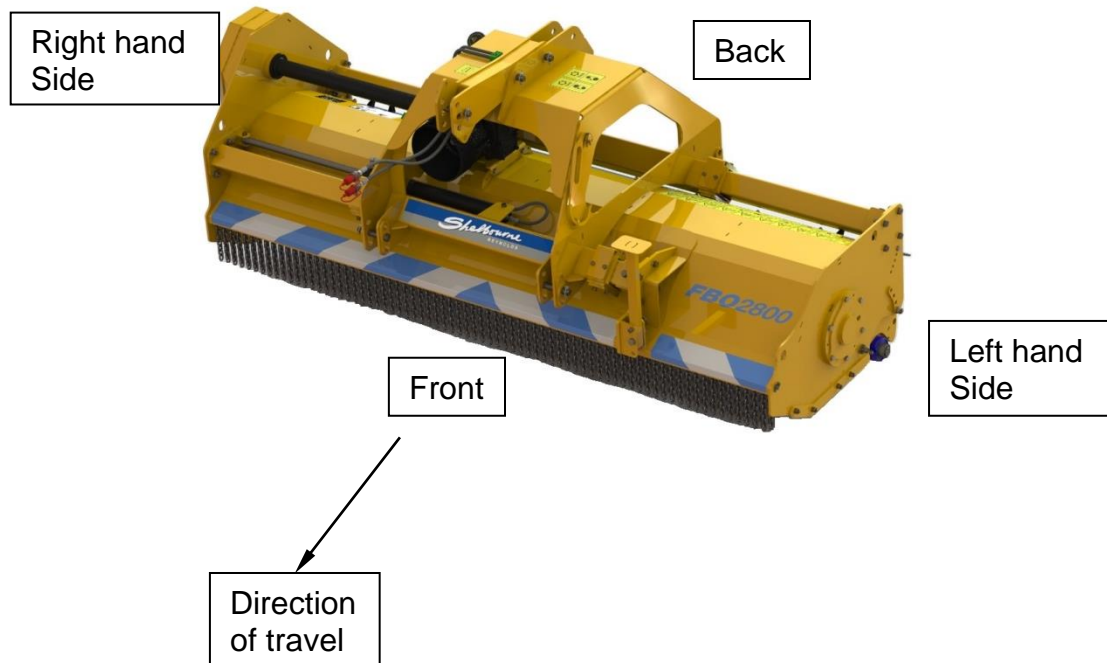
The machine's intended to be used on typical farms and highway verges for the regular

management of vegetation.

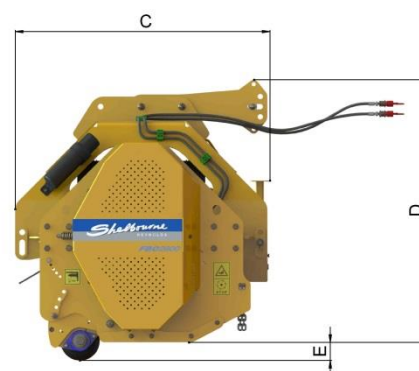
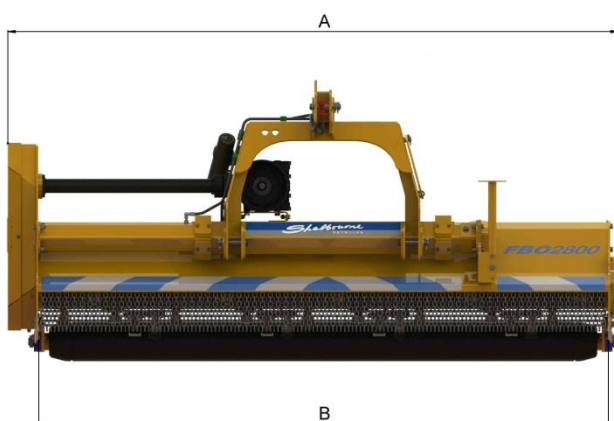
The Flail Mower mulches the material cut in to fine and smaller strands/pieces and distributes it evenly behind the Flail Mower. This allows the material to decompose quickly and no additional action is required to clear the cut vegetation.

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.



Technical Specifications	FBO2800
Weight and Dimensions	
Overall width (A)	3000mm
Cutting width (B)	2800mm
Overall depth (C)	1250mm
Overall height (D)	1290mm
Cutting height (E)	15-90mm
Weight	1322kg
Driveline	
PTO Speed	540/1000rpm
Max hp	185-235hp
Overrun clutch.	Built into gearbox
No. of belts	5
Type/number of flails	
Hammer (Standard)	24
Competition (Optional)	54
Flail Shaft Speed	
540 PTO speed	1674rpm
1000 PTO speed	1952rpm
Misc.	
Hydraulic offset	600mm
Mounting	Front & Rear
Linkage type	CAT II
Min. Tractor hp. req.	100hp
Min. Tractor weight	3500kg

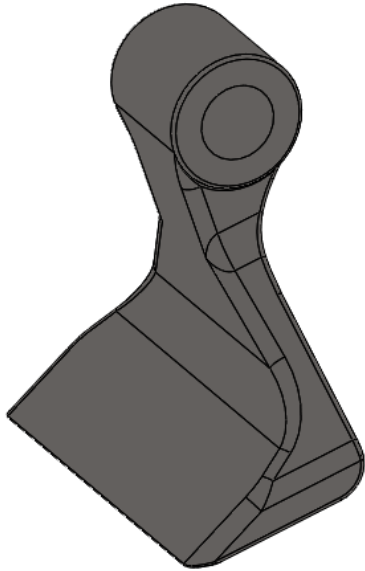


All dimensions weights and other data are approximate.

3.4 TECHNICAL SPECIFICATIONS OPTIONS

Flail type:

Hammer type
(Standard flail)

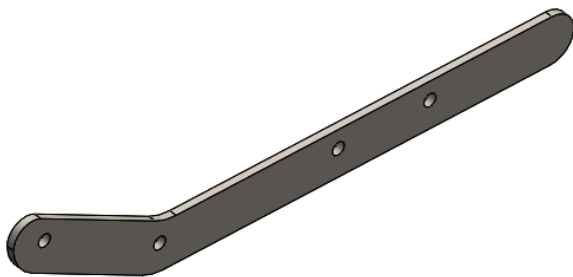


Competition type
(For finer mulching & finish)

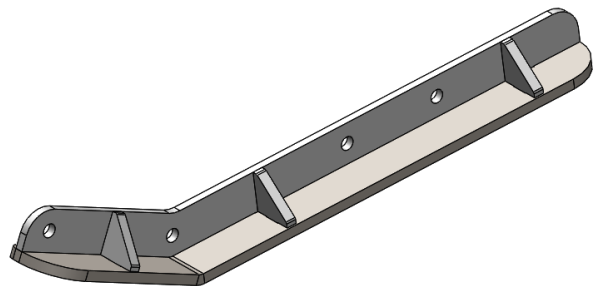


Skid type:

Flat skid
(Standard skid)



Welded skid
(For more undulating ground)



SECTION 4:

HANDLING AND TRANSPORTATION



Refer to section 2 for safety procedures.

To prevent damage to the Flail Mower, the machine should only be moved by the following method.

4.1 UNLOADING/LOADING

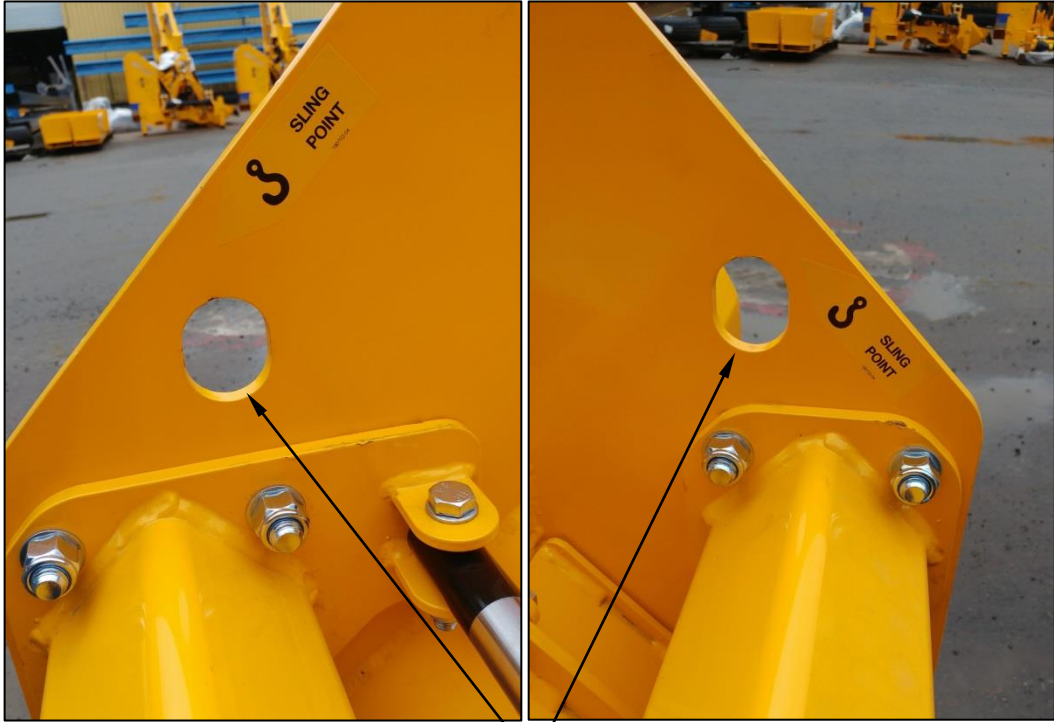


Refer to section 2.3 for accident prevention before starting.

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



Sling points on left hand side



Sling points on right hand side



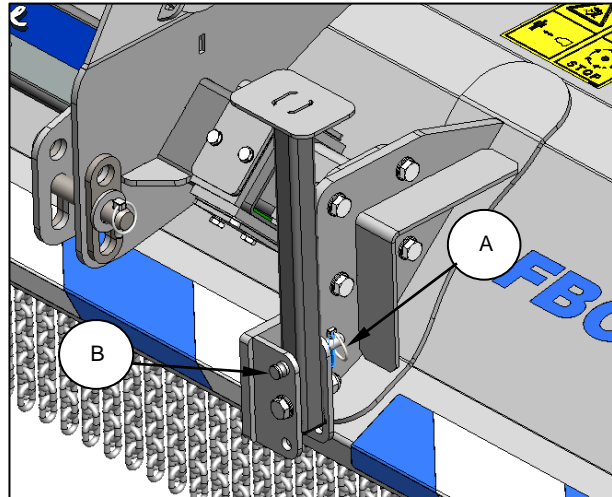
DO NOT use a telehandler's/forklift's tines to lift from the underside of the headstock. The machine may be unbalanced and potentially could cause damage to a person or the machine.



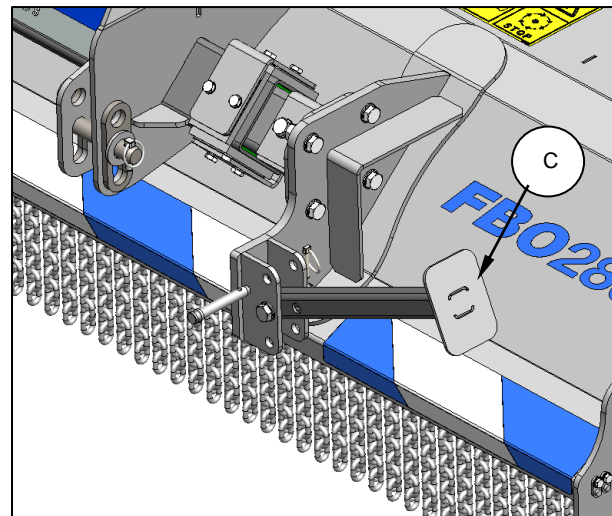
DO NOT use a telehandler's/forklift's tines to lift from underneath the flail or front. As the roller can move it may roll off the tines and potentially could cause damage to a person or the machine.

When storing the Flail Mower on the ground, it is necessary to swing the storage stand down to keep the Flail Mower level to aid coupling to a tractor.

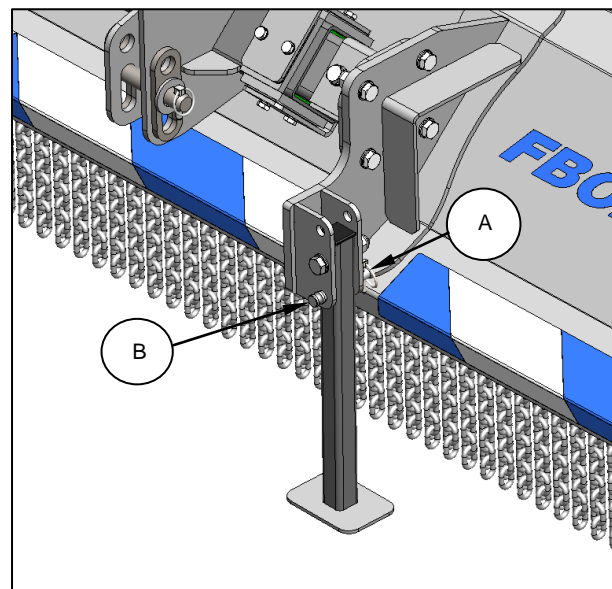
To do this remove the lynch pin (A) retaining the locking pin (B).



Then remove the locking pin (B) and swing the stand (C) down 180°



Re-insert the locking and lynch pins (B&A respectively) as shown.



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 6 for more detail and correct procedure's to follow.

When transporting the Flail Mower ensure:

1. The lifting device has suitable capacity to lift the Flail Mower.
2. All nuts and bolts are tight and that the Flail Mower stand locking pin is in its locked position before attempting to move the Flail Mower.
3. When leaving the Flail Mower in a new location, it's on a firm and level site.

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 Flail Mower. 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 typical horsepower requirement for the various machine configurations.

Before attaching the Flail Mower it is important to ensure the tractor is suitable for the machine.



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

The tractor size and weight should be substantial enough so that when the Flail Mower is fully lifted off the ground on either the front or rear linkage and fully offset, the tractor remains completely stable and with all four wheels in full contact of the ground, in all conditions. Either in work or on the public highway a minimum of at least 15% of the total vehicle weight of the tractor and Flail Mower should be carried on the front axle.

Ensure tractor axle weights and tyre ratings are not exceeded.

Ensure the combination of the tractor and Flail Mower does not exceed the Gross Vehicle Weight (GVW).

Weights can be measured by driving the tractor and Flail Mower 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 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 – 3.5 meters, speeds of more than 32 km/h (20 MPH) must not be exceeded when on the public highway.

5.2 PREPARATION OF THE FLAIL MOWER BEFORE ATTACHMENT



Refer to section 2.3 for accident prevention before starting.

The Flail Mower will be delivered to the dealer fully assembled, except for the PTO connections.

Flail Mower checks:

- Check in general that nuts & bolts are tight.
- Ensure that all safety guards, decals are fitted and legible.
- Check gearbox oil level (See section 7).
- Lubricate all accessible grease points (See section 7).
- Check all flails are intact and the flail bolts are tightened correctly (See section 7).
- Check drive belts are tensioned correctly (See section 7).
- Check that both safety curtains are fully intact.
- 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 Flail Mower is suitable for a Category 2 tractor linkage. 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.

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

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



5.4 ATTACHMENT – TRACTOR TO FLAIL MOWER



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

5.4.1 PRE COUPLING CHECKS/ADJUSTMENTS

1. Identify whether the Flail Mower is to be used on the front or rear linkage of the tractor. Identify if the tractor has lift arms with fixed ball ends or has a quick release ball end style.
2. Identify how the Flail Mower is configured, either for front or rear mounting. It may be necessary to reconfigure the Flail Mower's set up.

Parts which may need to be reconfigured are:

- PTO shaft
- Top link bracket
- Hydraulic hoses

3. To switch the PTO from one side to the other, first undo the clips (A) on both sides of both PTO cones (B) and unclip the PTO safety chain (C).

Press in the pins of the PTO shaft and pull the PTO shaft off of the gearbox shaft.

Move the PTO shaft to the other side of the gearbox and replace on the gearbox shaft ensuring the pins lock into place.

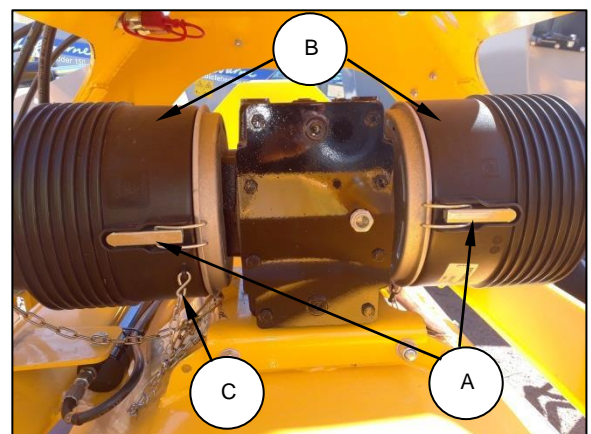
Replace both PTO cones (B) and ensure clips (A) are secured. Re-clip the PTO safety chain (C).



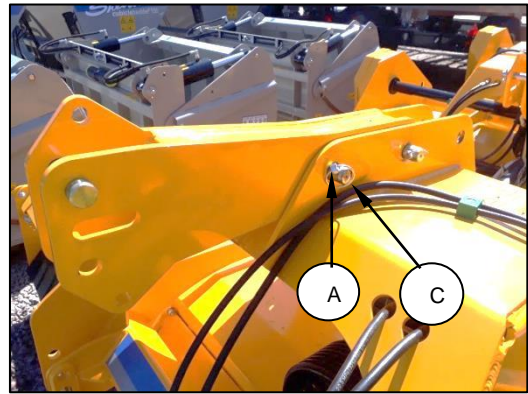
Front Mounting Set Up



Rear Mounting Set Up



4. To switch the top link bracket (B) between front and rear mounting set up. Remove the lynch pin (C) from locking pin (A). Remove pin (A), flip the top link bracket (B) over 180° and re-insert the locking pin (A) into the corresponding hole. Ensure that the lynch pin (C) is clipped back into place.

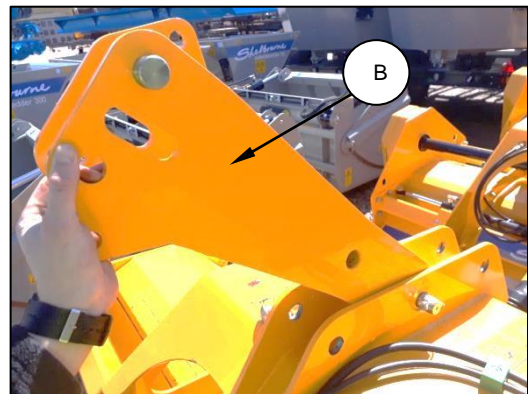


Set up for front linkage



Ensure you don't pinch fingers while flipping the top link bracket from one side to the other.

5. The hydraulic hoses for the hydraulic offset function also may need to switch sides. The hoses can easily be switched without any disassembly/assembly required and stored in the hose storage holes on the correct side.



Set up for rear linkage

5.4.2 LINKAGE POSITION SELECTION

Once the mower has been correctly set up for front or rear mounting, positions for mounting the linkage balls should be selected.

Shelbourne Reynolds has supplied a number of different positions for individual preference or requirements, although Shelbourne Reynolds recommends:

For mounting to the front linkage

The tractor's lower link arms should be located in either hole (D) or slot (E). If hole (D) is used, the operator should also use the float function of the tractor's linkage arms. Please see the operator's manual for the tractor for how to do this. The top link should be located in either hole (A) or (C). This allows the Flail Mower to float over the contours of the ground on the rear roller with the facility of fine cutting height adjustment made on the top link.

For quick release style balls, locate ball (J) over pin (I) in desired hole position and re-fit washer (H) and lynch pin (G).

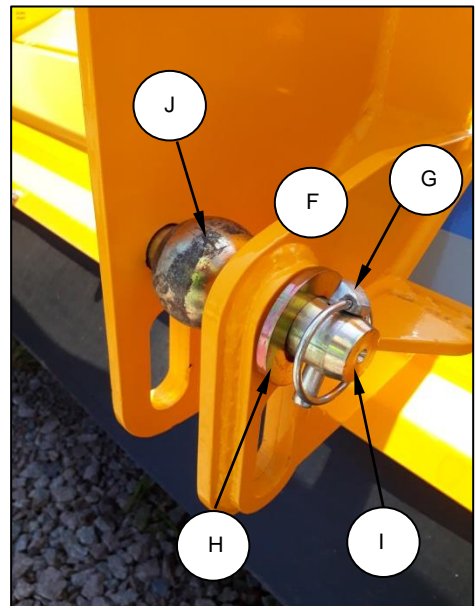
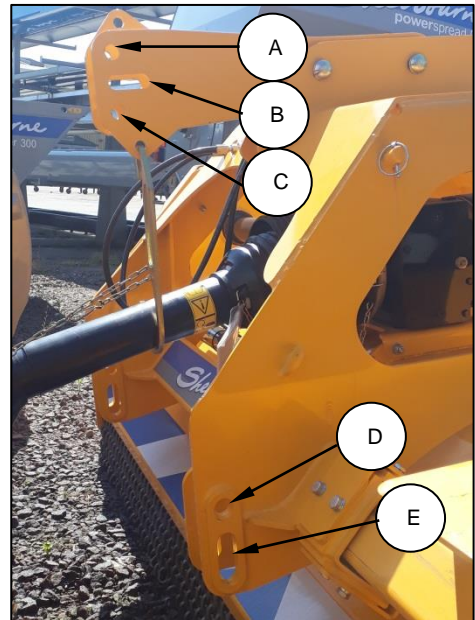
For mounting to the rear linkage

The tractor's lower link arms should be located in the slots (E). The top link position should be located in either hole (A) or (C). This allows the Flail Mower to float over the contours of the ground on the rear roller with the facility of fine cutting height adjustment made on the top link.

For quick release style balls, locate ball (J) over pin (I) in desired hole position and re-fit washer (H) and lynch pin (G).

Check that fixing and pins are secure regularly.

WHEN USING SLOTS (E), ENSURE WASHER (H) IS ALWAYS BETWEEN LYNCH PIN (G) AND THE HEADSTOCK (F).



Using slot (E) without using washer (H) may result in the Flail Mower becoming detached from the tractor, potentially causing injury to a person or damage to the machine.



Beware when locating pins. Fingers can become pinched or trapped.

5.4.3 COUPLING TO THE FRONT LINKAGE

When attaching to the tractor's front linkage, the tractor should be carefully moved slowly towards the machine to attach the tractor lift arms onto the Flail Mower's headstock. 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.

When coupling the top link, use the appropriate holes on both the Flail Mower and the tractor ensure that the top link (A) is as parallel to the lower linkage arms (B) as possible when the Flail Mower is resting on the ground. This will allow the Flail Mower to raise parallel to the ground when lifting out of work.

If the Flail Mower does not raise parallel to the ground when lifting, the gearbox may produce a 'growling' sound at the top of the range. This is due to the gearbox input shaft not being parallel to the tractor's output shaft and the overrun clutch inside the gearbox constantly engaging/disengaging.

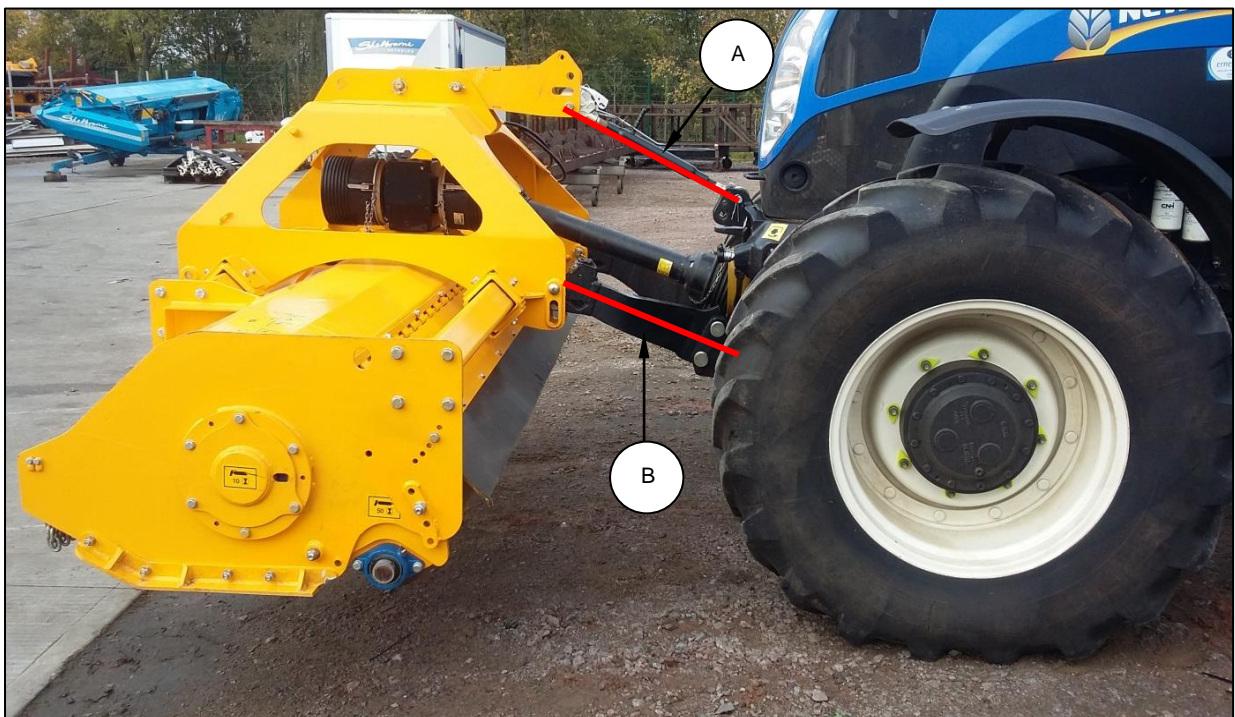
Lengthen or shorten the top link so that the Flail Mower is parallel to the ground when in working position.



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



Ensure roller is fully supported on the ground before adjusting the top link. Beware of crushing.



5.4.4 COUPLING TO THE REAR LINKAGE

When attaching to the tractor's rear linkage, the tractor should be carefully moved slowly towards the machine to attach the tractor lift arms onto the Flail Mower's headstock. 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 the 'SAFE STOP' procedure before dismounting from the tractor. Ensure the lift arms are locked onto balls, or pins can be inserted through fixed ends.

1. Lengthen or shorten the top link so that on level ground the Flail Mower is parallel to the ground.
2. Lock the tractor check chains with the machine positioned centrally to the tractor ensuring to adjust them so that there is no sideways sway.
3. Check that the Flail Mower is parallel to the tractor axle. If it is not level, adjust the tractor's drop arms accordingly. This will ensure a level cutting finish is achieved when in work.



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.



Ensure roller is fully supported on the ground before adjusting the top link. Beware of crushing.

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.

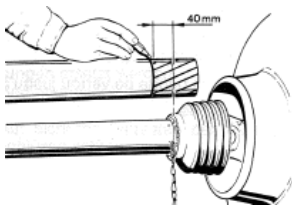
5.5 ADJUSTING AND CONNECTING THE PTO DRIVE SHAFT



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.

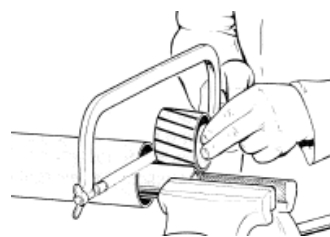
The length adjustment is to be carried out as follows (If using power tools, ensure they are in good working order before work is started and correct PPE is worn including ear protection):



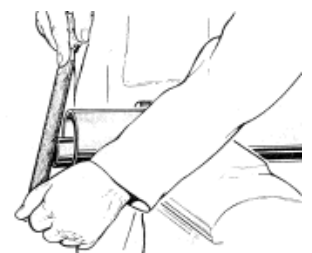
To adjust the lengths hold the half shafts next to each other in the shortest working position and mark them 40mm as shown.



Clamp the tube in place, then 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.

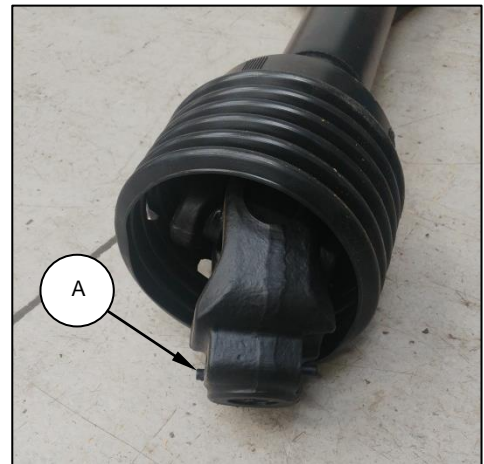


Ensure the inner and outer PTO shafts are overlapped by at least 155mm when the Flail Mower is central to the tractor. Damage to the shaft and injury may result.

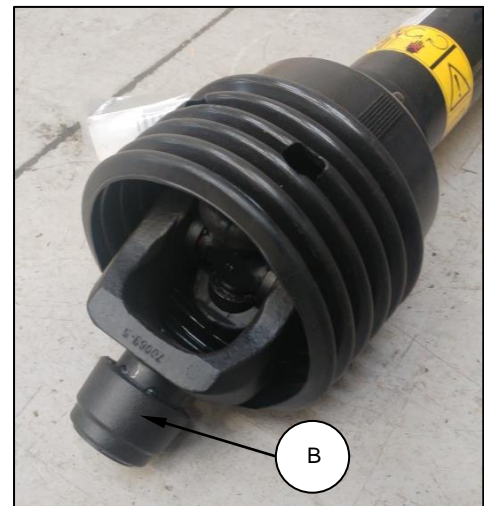
Ensure correct PPE is worn before fitting the PTO shaft.

Fit the PTO shaft ensuring to:

Connect the pin type yoke (A) end to the Flail Mower gearbox.



Connect the pull release locking collar yoke (B) end to the tractor.



With the PTO connected but with its drive disengaged, ensure that the machine can be raised and lowered fully without the PTO fouling on any part of the tractor or machine.

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.

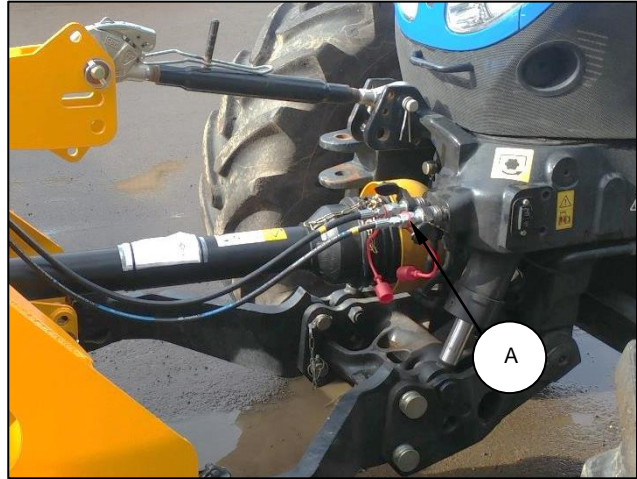
5.6 CONNECTING THE HYDRAULIC HOSES



Refer to section 2.6 for accident prevention when using the hydraulics.

The Flail Mower requires x1 double acting spool valve for the hydraulic offset function.

Before connecting, perform a 'SAFE STOP' and ensure there is no residual pressure left in the system. This can be done by indenting the quick release coupling. If this presses in then no pressure is in the system. If the coupling cannot be pressed in, there is pressure in the system and a hydraulic fitting may need to be cracked off and loosened to let out some oil.



Front linkage hose connection

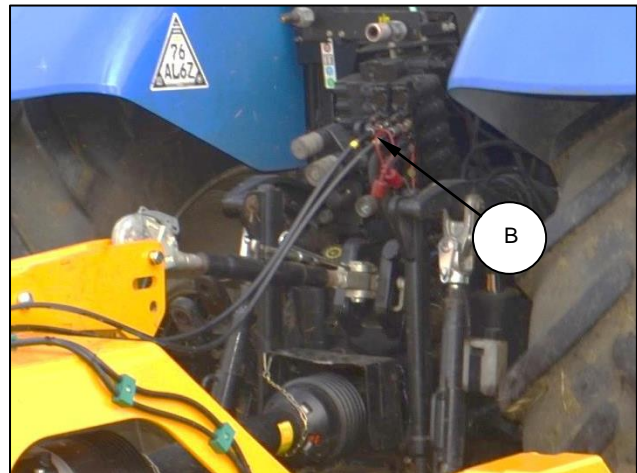


Beware of high pressure oil squirting from the fitting. Ensure to cover the fitting and to wear appropriate PPE (Personnel Protective Equipment), such as overalls, gloves and protective eye wear. Never place hands over the hydraulic fitting.

Ensure both the male couplings of the Flail Mower and the female couplings of the tractor are clean and free of dirt.

Insert the hoses into the tractor's couplings, pulling the collar (A) back if applicable. If the tractor's coupling is a push fit type (B), insert straight into the coupling.

Check that the hoses are long enough and are not stretched at any point throughout the lifting range.



Rear linkage hose connection

5.7 DRIVE PULLEY CONFIGURATION AND BELT TENSION



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

The Flail Mower can be used with a tractor PTO speed of either 540 or 1000rpm.



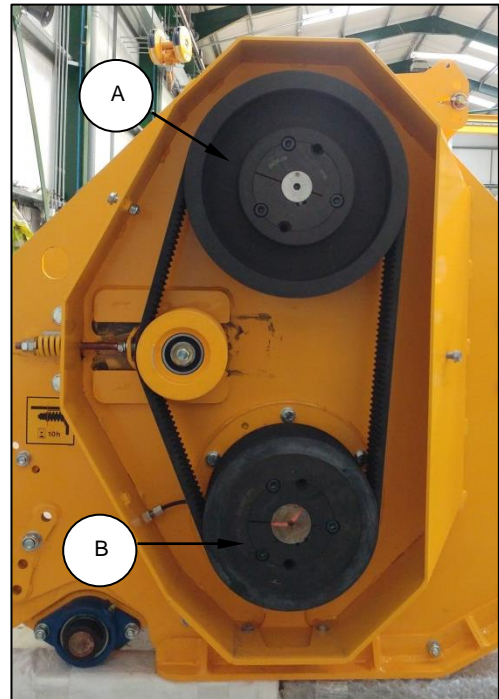
Ensure that the driving and driven pulleys are set up correctly according the tractor's PTO speed. Incorrect set up may decrease the performance of the machine, cause damage to the machine or potentially injure a person.

540 PTO speed set up

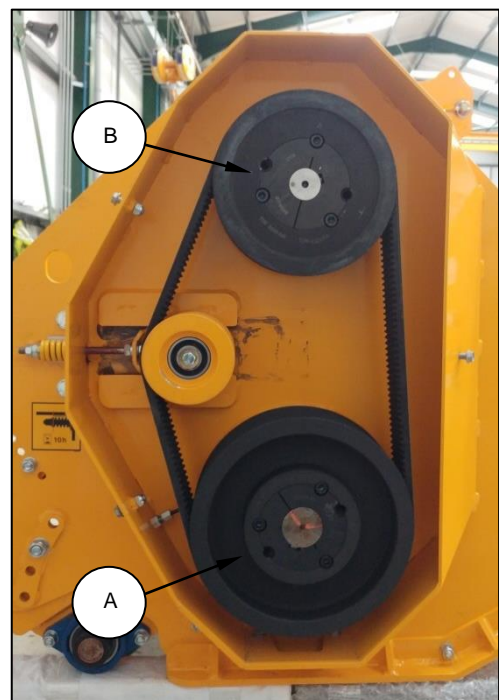
When the tractor's PTO speed is set to 540rpm, the larger pulley (Ø322) (A) must drive the smaller pulley (Ø257) (B), to achieve the desired shaft speed. If the pulleys are not set correctly, shaft speed will be significantly slower and performance reduced.

1000 PTO speed set up

When the tractor's PTO speed is set to 1000rpm, the smaller pulley (Ø257) (B) must drive the larger pulley (Ø322) (A), to achieve the desired shaft speed. If the pulleys are not set correctly, shaft speed will be too fast. The flail shaft assembly may be unbalanced at a faster speed than intended, potentially causing damage to the machine or injury to a person.



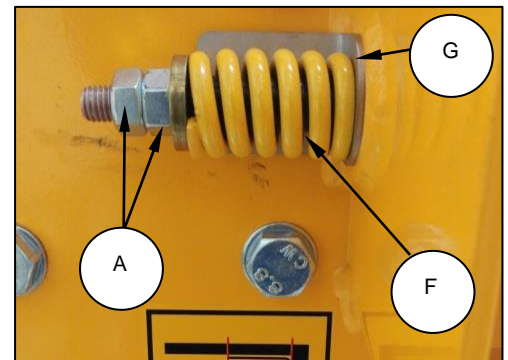
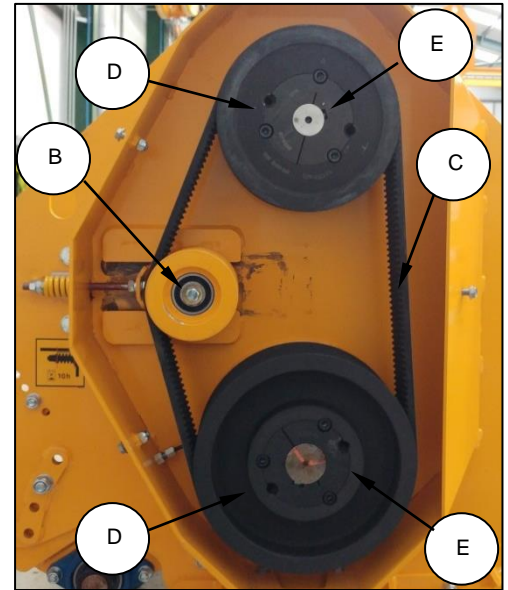
540 PTO speed pulley set up



1000 PTO speed pulley set up

To change the pulleys over:

1. Lower the Flail Mower to the ground.
2. Perform the 'SAFE STOP' procedure.
3. Remove the drive guard.
4. Release the belt tension by unlocking and unwinding the plain nuts (A) on the belt tensioner sub assembly.
5. Remove the tensioner pulley (B).
6. Remove the x5 belts (C). It may be necessary to rotate the pulleys slightly to aid rolling the belts off.
7. Remove the x3 cap head screws from (D) pulley and locate x2 of the screws into the unused tapped holes opposite each other.
8. Wind the cap head screws in evenly to push the pulley away from the taper lock (E).
9. Once the taper lock is free from the shaft, remove the pulley and taper lock from the shaft. Take care when removing the pulley due to the part's weight (Approx. 30kg). Dropping the pulley may result in injury or damage the pulley or the machine.
10. Repeat for the second pulley.
11. Switch the taper locks between the pulleys as the individual taper locks are different sizes and stay with the shaft.
12. Replace the bottom pulley and taper lock first and slide the taper lock all the way up to the bearing. Replace the x3 cap head screws and tighten evenly to 100Nm.
13. Replace the top pulley and taper lock. The pulleys should be aligned to ensure the belts perform well and reduce wear/damage. Start by setting the top pulley slightly more towards the side sheet. Tighten the cap head screws to 100Nm, the pulley should be drawn outwards towards the taper lock.
14. Check the pulleys are in line using a straight edge.
15. If the top pulley is not aligned, release the pulley from the taper lock (steps 7 & 8 may have to be repeated).
16. Move the taper lock and pulley in the direction required, replace x3 cap head screws and tighten.
17. Repeat step 14 if required.
18. Replace the belts. It may be necessary to roll each belt on through the 'v's one at a time.
19. Replace the belt tensioner.
20. Wind the first plain nut in until the spring (F) compresses to the length of the gauge (G).
21. Lock the second plain nut off against the first nut.
22. Replace the drive guard.



5.8 FINAL ATTACHMENT AND RUN UP



Refer to section 2.7 for accident prevention when operating.

Ensure that no person is working on the machine and bystanders are at a safe distance. Start the tractor and allow to warm up if necessary.

Having first read and understood the information on the tractor and after ensuring there is sufficient room around the Flail Mower, lift the machine off the ground. Stop the tractor using the 'SAFE STOP' procedure. The parking stand can now be swung up from its 'parked' to its 'work' position.

The hydraulic offset can now be checked. Please refer to the tractor's operator manual on how to operate the tractor's spool valve which the hydraulic hoses are attached. It is advised to use a spool's operational movement to coincide with the offset movement. Swapping over quick release coupling connections may be required.

If it is safe to do so, start the tractor and activate the spool which the hydraulic offset ram is connected to. Move the cylinder to its extremes to expel any air and to ensure the Flail Mower fully offsets without the PTO or any other part of the machine clashing with the tractor or another part of the machine.

Before running the machine, position the Flail Mower just above the ground ensuring the flails will be clear of any foreign objects. With the tractor's engine running at idle revs start the flail shaft assembly by engaging the tractor's PTO and allow the flail shaft assembly to get up to speed. Slowly increase the tractor's engine revs until the desired PTO speed is reached. Run for 3-4 minutes. If there is a problem whilst running the machine or a person enters the testing area, immediately disengage the PTO and allow the flail shaft assembly to reach a complete stop before leaving the tractor seat.

Allow time for the oil in the gearbox to settle and check the oil level. Top up if necessary.

Check all hose runs to ensure that they are not pinching or chafing.

5.9 REMOVAL



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

1. Select a firm and level site to park the machine.
2. The parking stand can now be swung down to its 'parked' position.
3. Then lower the tractor linkage until the roller is in contact with the ground. Adjust the top link to ensure both the roller and the stand are in full contact with the ground. The tractor top link should become loose, with no load on it when sitting correctly.
4. Once sitting stable, perform the 'SAFE STOP' procedure.
5. Remove the PTO and hang on the supplied bracket.
6. Remove hydraulic hoses from the tractor.
7. Remove the top link and refit the pin once clear.
8. Remove the lower link arm pins and replace once link arms are clear.
9. 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.

5.10 REATTACHING THE MACHINE

Reattaching follows the same sequence as in the initial attachment methods. It will not be necessary to check the PTO shaft length unless there has been a change of tractor or the Flail Mower has been moved from the front linkage to the rear linkage or vice versa.

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SECTION 6:

OPERATION



Refer to section 2 for safety procedures.

6.1 TRANSPORTING WITH THE TRACTOR



See section 2.11 for accident prevention when taking on public roads

Before transporting to the work area:

1. Ensure that the Flail Mower is properly connected to the tractor as described in Section 5. Ensure all pins and connections are secure
2. Lift the Flail Mower off the ground as high as possible to ensure maximum clearance.
3. Ensure that the Flail Mower/tractor combination is set to its narrowest possible set up. It may be required to use the hydraulic offset to move the Flail Mower from side to side as described in Section 5 to reach the narrowest set up.



If the overall width of the tractor and Flail Mower is between 2.55-3.5m, speed is restricted to 32km/h. Any vehicle and implement combination over 3m requires a Police dispensation.

6.2 STARTING THE FLAIL SHAFT ASSEMBLY



See section 2.7 for accident prevention when operating.

Once ready to start work, ensure that the tractor's engine revs are at idle speed and that the Flail Mower is positioned just off the ground so that the flails are not in contact with the ground or any foreign object. Check that all observers are clear of the Flail Mower and tractor. Warn bystanders by sounding the horn of the tractor several times. Ensure your visibility is kept clear at all times. Engage the tractor's PTO switch. Once the flail shaft assembly is up to speed slowly raise the tractor's engine revs to the desired PTO speed; 540 or 1000rpm depending on the Flail Mower's pulley arrangement (See section 5.7).

6.3 STOPPING THE FLAIL SHAFT ASSEMBLY



See section 2.7 for accident prevention when operating.

To disengage the flail shaft assembly, switch off the tractor's PTO (Please see tractor's manual for how to do this). The full PTO drive can be disengaged at the tractor's full working revs; the overrun clutch in the Flail Mower's gearbox will ensure the flail shaft assembly does not 'drive' the tractor's PTO. However it is good practice to reduce the engine speed first.

6.4 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 may 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.

6.5 USING THE FLAIL MOWER



See section 2.7 for accident prevention when operating.

After starting the flail shaft assembly by the method above ensure that the the work area is clear and gently lower the Flail Mower to the ground. If you are to use the tractor's float function on the linkage, put it into float.



Always lower the Flail Mower into the work gently. Dropping the Flail Mower suddenly and rapidly to the ground may result in the roller bearings failing or flails contacting the ground/obstructions.

Once in the working position drive forwards and continue at a suitable speed depending on the ground conditions, any nearby obstacles and desired finish. If a finer surface finish is required, slow the forward speed down as there will then be more cuts per metre.

The hydraulic offset can operated (see section 5) on either the front or rear linkage to get closer to a hedge or an obstacle while maintaining the tractor's distance from the object.

The hydraulic offset is also beneficial when mounted to the rear linkage of the tractor. When mounted to the rear linkage, the tractor's tyres will lay and squash the grass/vegetation down in front of the Flail Mower. This may leave strips of longer grass in line with the tractor's wheeling's. To reduce the amount of wheeling's the Flail Mower can be fully offset so that only one side of the tractors wheels run over the uncut material as shown in the picture below.



6.6 CUTTING MATERIAL

The Flail Mower is primarily designed to cut and mulch vegetation such as grass margins, shrub land or covers but it can cut slightly larger 'woody' material like young saplings or brambles if required.

6.7 FLAIL MOWER ADJUSTMENTS



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

6.7.1 ADJUSTING THE CUTTING HEIGHT

For minor adjustments of the cutting height, the top link can either be lengthened or shortened to angle the Flail Mower and in turn lengthening or shortening the cutting height as the flail shaft assembly raises or lowers respectively when adjusting the top link.

For larger adjustments of the cutting height the rear roller can be adjusted up and down. The purpose of the rear roller is to follow over the contours of the ground maintaining a consistent cutting height and also protecting the mower's cutting flails from making contact with the ground.



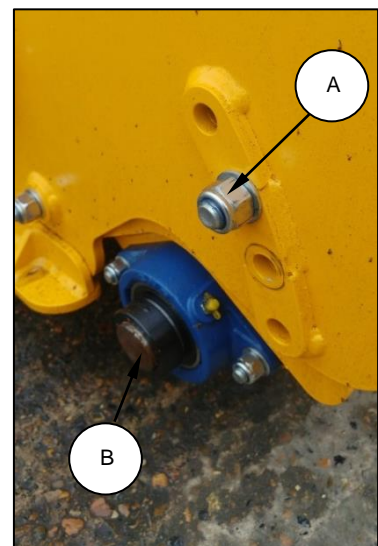
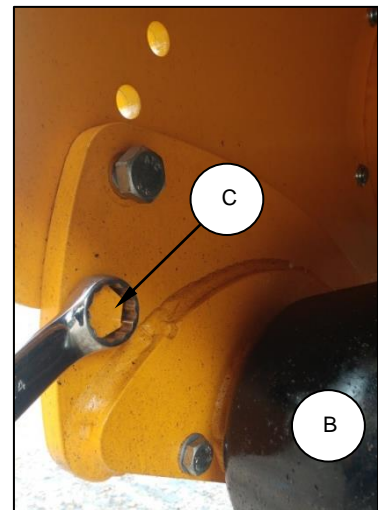
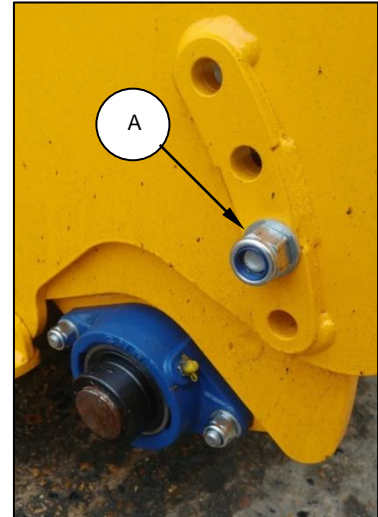
Repositioning the roller should only be completed using the method described below.

Before reposition the roller, perform a 'SAFE STOP' and ensure the flail mower is adequately blocked to prevent crushing. The roller has 4 positions, in its highest position the cutting height is at its shortest and when the roller is in its lowest position the cutting height is at its tallest. The roller position can be manually adjusted by removing the position bolts (A) and lifting or lowering the roller (B). The position bolts can then be relocated in the desired hole.

To aid the lifting or lowering of the roller there is a hex head (C) on the inside of each roller pivot plate. A 24mm spanner can be attached to this hex head and used as a lever to lift or lower the roller as shown below. Take care, ensuring the spanner does not slip off the hex head. 1 person each side can lift the roller to aid repositioning, if necessary.



Never remove the rear roller completely. It helps to the flails from the ground and obstructions.



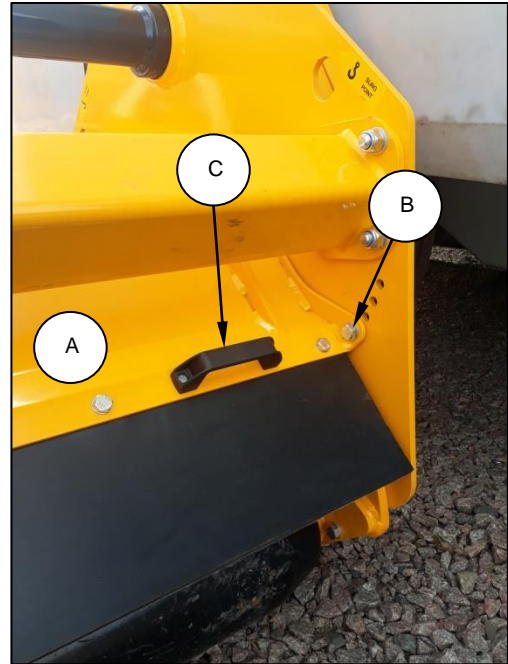
6.7.2 ADJUSTING THE REAR MATERIAL GUIDE

The Flail Mower also has an adjustable rear material guide to change the material flow through the mower.

If a large volume of material is being cut, the guide can pivot open to help the material exit the machine.

If a finer mulch of the material is required the guide can pivot closed to help keep the material in the mower for longer, mulching it further.

To adjust the rear material guide (A), ensure a 'SAFE STOP' has been performed and the mower is fully supported on the ground or sufficiently blocked to prevent crushing. Remove the bolt (B) on each side of the guide clamping the guide to the side sheets, using the handles (C) lift or lower the guide to the desired position and refit the bolts.



Never remove the rear material guide completely. It helps to shield the flail shaft assembly and contain flying objects.

6.8 REMOVING FOREIGN OBJECTS OR A 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 Flail Mower stalls then there will be a foreign object such as a large stone, tyre, wire, etc or a build-up of material within the flail area. Stop the Flail Mower immediately along with tractor movement. Lift the Flail Mower as high as possible, perform the 'SAFE STOP' procedure, open the rear material guide and/or drop the roller if necessary to improve access to the blockage.




If it is required to work underneath the Flail Mower, use a mechanical prop or block the machine sufficiently so there is no risk of it lowering. Failure to do so could result in crushing.

SECTION 7: MAINTENANCE AND STORAGE

 Refer to section 2 for safety procedures.

7.1 LUBRICATION

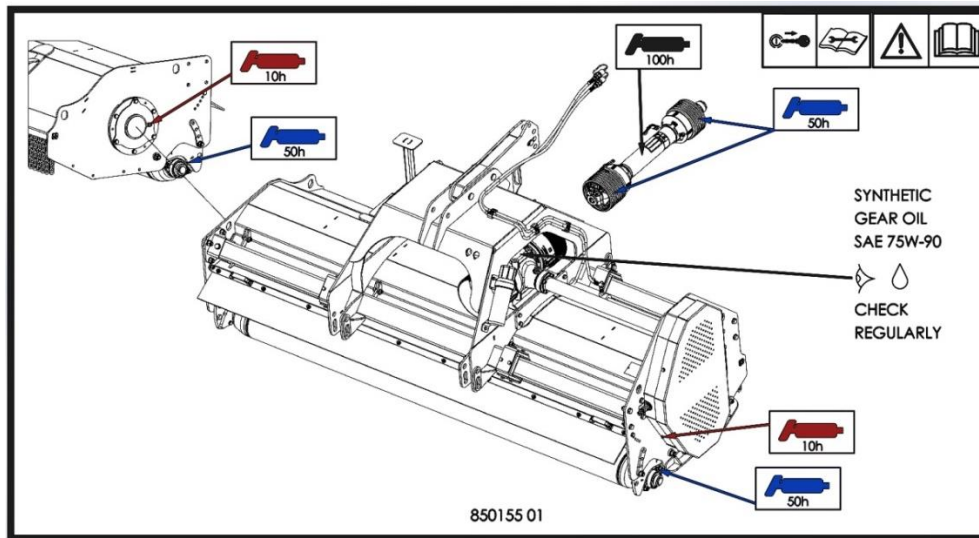
 Refer to section 2.10 for accident prevention when servicing / adjusting the machine.

Both flail shaft bearings should be greased every 10 hours (daily) and the roller bearings should be greased every 50 hours.


Brand of grease recommended:
Total multis complex EP2 grease.

The slideway wear pads can be lightly greased if desired. If upon hydraulically shifting the Flail Mower from side to side movement is not smooth, lightly grease the slideway. Note that the cylinder does not need regular greasing as it does not articulate.

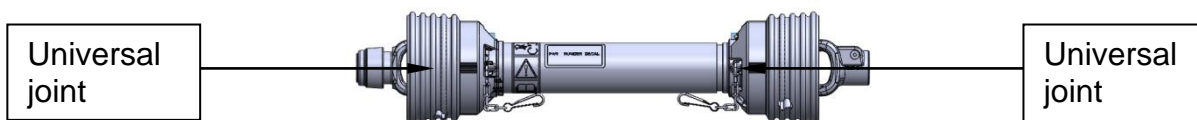
The following transfer will be found on the machine:



7.2 PTO SHAFT

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

Grease both universal joints every 50 hours and every 100 hours (or every 2 weeks), grease the PTO guard and separate the telescoping members to grease along the length of the inner shaft.



7.3 GEARBOX & EXTENSION



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
Mobilube SHC SAE 75W-90.

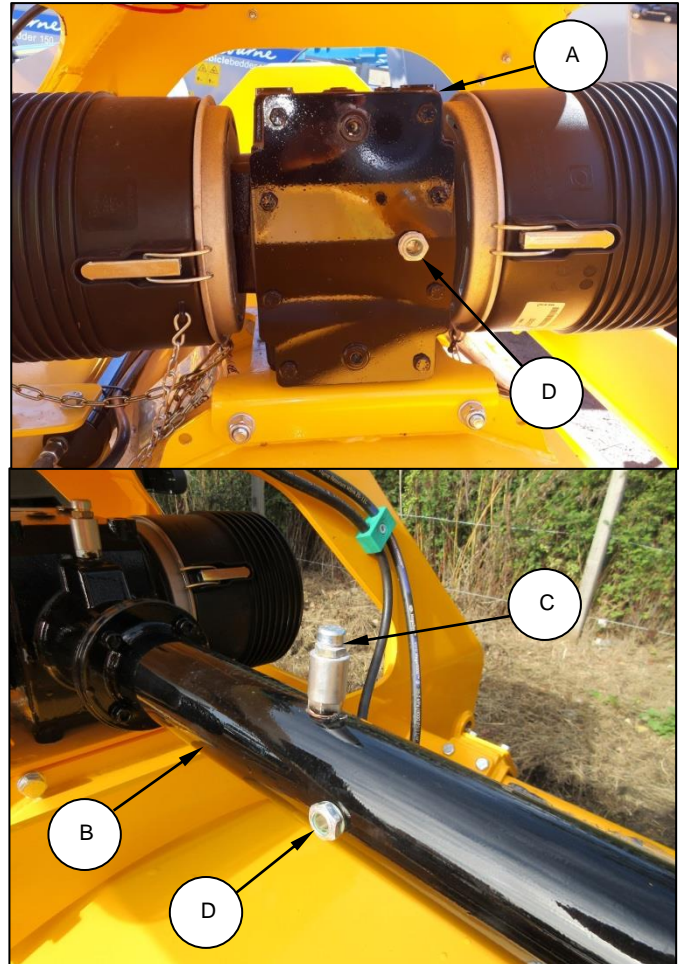
On some earlier machines, the gearbox (A) and gearbox extension (B) share a single oil reservoir, whereas on later machines there are two separate oil reservoirs.

If the gearbox extension has a filler / breather (C) and sight glass (D) fitted, then the machine has two reservoirs.

For single reservoir machines the gearbox (including its extension) oil capacity is 5 litres.

For two reservoir machines the gearbox (A) oil capacity is 3 litres and the gearbox extension (B) oil capacity is 2 litres.

Oil should be filled with the above volumes and will be seen in the sight glass(es) (D).



Gearboxes should be drained and then refilled with new oil after the first 50 hours and then every 500 hours, or 2 years of use, whichever comes first.

Check that oil is seen on the gearbox and extension sight glass (D) regularly during use.

7.4 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. If the braiding itself has

become damaged then the hose 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

7.5 CARE OF THE FLAIL SHAFT ASSEMBLY



See section 2.7 for accident prevention when operating.

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



Identify what PTO speed is required by pulley configuration and operate PTO to the corresponding speed. NEVER over speed the PTO.



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

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

Shelbourne Reynolds Flail Mower flail shaft assemblies use a bolt on balance weight system. This means it's highly important that when replacing 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 Flail Mower flail shaft assembly becoming out of balance.

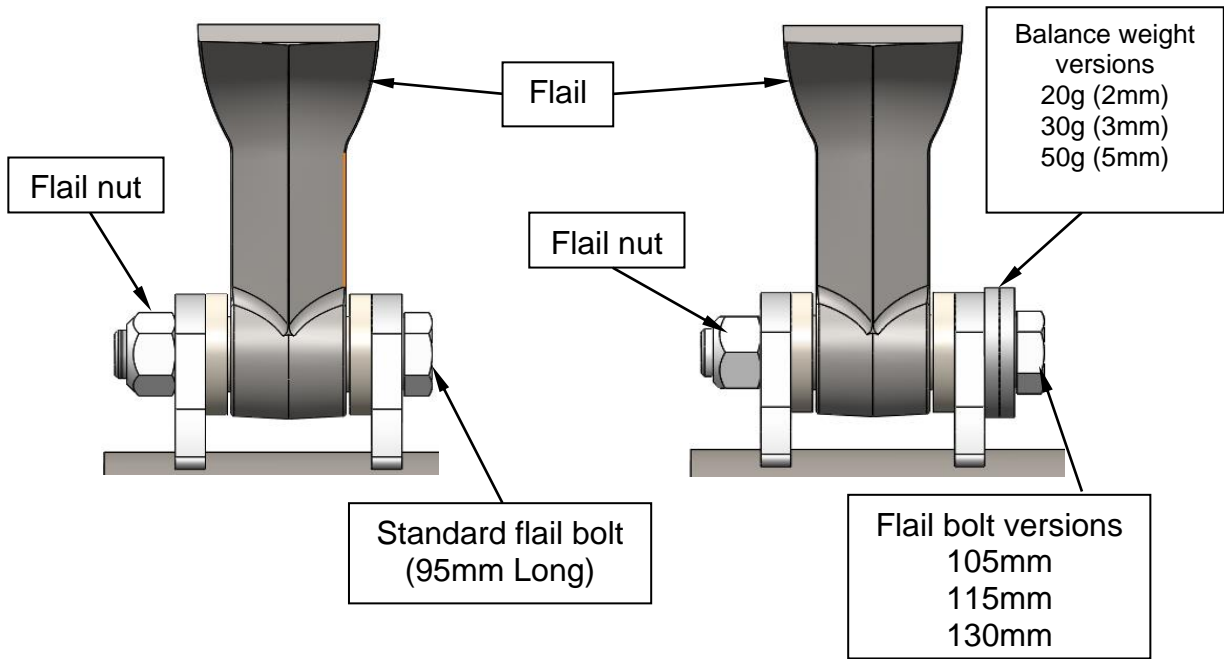


If flail nuts, bolts, washers and balance weights have been removed without identifying from which position they've come from, refer to the flail shaft balance chart.

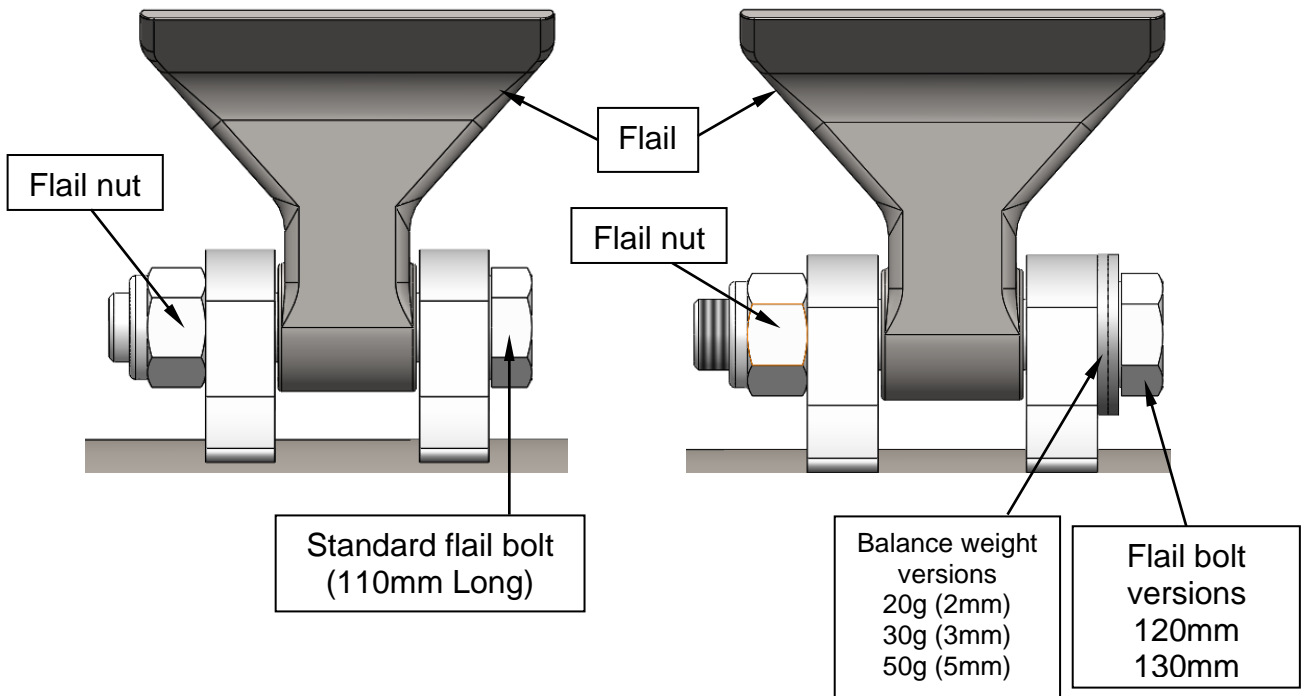
Check for loose, broken or missing flails every 4 hours. Also check the flail shaft assembly, roller and other bolts on the Flail Mower for tightness. Keep the flails reasonably sharp in order to give a neat finish and less power consumption.

To balance the flail shaft assembly 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 flail shaft assembly is re-balanced. Every machine has a flail shaft balance sheet supplied in its manual canister from new. If the balance sheet is missing contact Shelbourne Reynolds who hold a copy and a new balance sheet will be re-issued upon quoting the machine's serial number.

Competition Flail



Hammer Flail



Replace spacers, bolts and nuts exactly when replacing flails. The flails themselves should wear evenly and be replaced as a set. Should one flail break or become missing, the flail at 180° to that flail, should also be replaced at the same time to ensure the flail shaft stays balanced.

When ordering new bolts you will need to identify how many bolts of each length there are and order the same amount of each.

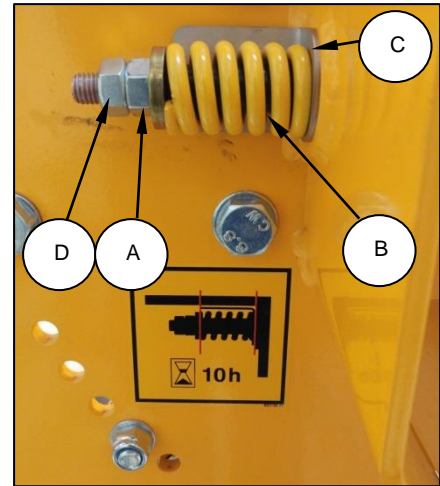
When required to carry out maintenance on the inside of the Flail Mower, if raised, ensure that a sufficient mechanical prop or blocks have been used to support the Flail Mower. Always perform a 'SAFE STOP' procedure before leaving the tractor cab.

Ensure that there is nothing wrapped around the flail shaft or roller.

7.6 BELT TENSION

The Shelbourne Reynolds Flail Mower is belt driven, check the belt tension daily. The belt tension can be checked without the need to remove the drive guard. The adjusting nut (A) should be tightened until the length of the spring (B) matches the length of the guide (C) as shown in the picture below.

To adjust the belt tension, first slacken the lock nut (D). Then turn the adjuster nut (A) clockwise to increase belt tension or anti-clockwise to decrease belt tension. When the belts are correctly tensioned the spring (B) length should match the length of the guide (C). Lock the lock nut against the adjuster nut to ensure the adjuster does not unwind and decrease the belt tension.



7.7 RECOMMENDED TORQUE SETTING FOR FASTENERS



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

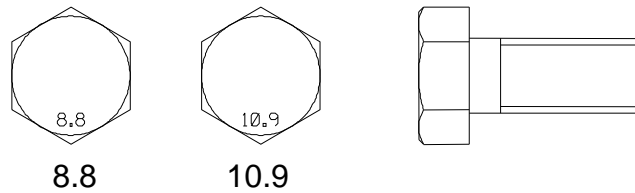
The table on the next page gives correct torque values for various size and grade of fasteners.

- 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: A Flail Mower using the Competition flails uses M16, 10.9 grade, fine threaded bolt which requires a torque setting of 270 Nm (200 lb/ft).

7.8 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 stickers. 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.)