



# SnakeS2

## Operator's Manual

**Serial No.**

### TRIMAX MOWING SYSTEMS

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*insist on Trimax*  
**Genuine Parts**





## **Welcome to Trimax Mowing Systems!**

Firstly, thank you for selecting a Trimax mower. All of us here at Trimax Mowing Systems congratulate you on becoming one of the most important people in our business, a Trimax customer.

Trimax is a progressive company that continually strives to satisfy your needs, so we welcome any feedback you can provide to help us improve our products and services to meet your expectations. Any constructive comments about this operator's manual are also welcome.

Your Trimax mower has been designed to perform its task efficiently and with a minimum of maintenance. This handbook provides safety guidelines, fitting instructions, maintenance requirements, parts listings and warranty forms. We recommend you carefully read the entire handbook before operating the mower as this will enable you to take full advantage of your new machine's considerable potential.

If you will be in charge of this machine but will not be operating it, please ensure all operators have access to a copy of this manual and are familiar with the machine and its operation before using it. A sign-off form is included so you can keep a record of those employees who have been trained to operate the machine. Extra copies of this manual can be obtained from your dealer or direct from Trimax Mowing Systems if required. The part number is printed at the bottom of each page.

Please ensure that whoever delivers your mower familiarises you with the mower and that you read and sign the Commissioning and Warranty Registration Certificate. This form ensures that both you and the installer were satisfied with the product at the time of delivery and that you know how to set up, maintain and operate it correctly. It also signifies the beginning of the warranty period and, we hope, a long and fruitful relationship between us.

**Note that if you register on-line the warranty period will extend to three years. Details of how to register are on the Commissioning and Warranty Registration Certificate.**

Once again, thank you for selecting a Trimax product.

Best regards

**The Management and Staff**  
**Trimax Mowing Systems**

**[www.trimaxmowers.com](http://www.trimaxmowers.com)**

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**ENGLISH EDITION**  
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# 1. Commissioning & Warranty Registration Certificate

1. **Where to find the Commissioning and Warranty Registration Certificate:**
  - a. This is a triplicate form, which should be found inserted into the cover of this manual.
  - b. The warranty on this **Trimax** product is spelt out in the Warranty Policy document.
2. **The purpose of the form:**
  - a. The document must be completed by the owner of the machine and the agent from whom it was purchased. It is designed to protect all parties involved by ensuring that:
    - the machine has been properly assembled and is in a safe condition before being operated
    - all relevant parts have been properly lubricated before use
    - the owner and/or operator is familiar with this operator's manual and understands how to use it
    - the owner and/or operator has been instructed how to operate the machine correctly under actual working conditions
    - the owner and/or operator is aware of safety issues regarding the use of the machine
    - the owner and/or operator has been instructed in the care and maintenance of the machine
    - the owner is satisfied with the machine's performance.
3. **What to do if the Warranty document has not been supplied with the machine:**
  - a. If the document was missing when the machine was delivered and commissioned, immediately contact the agent from whom the machine was purchased and request a new certificate.
4. **Where the papers go:**
  - a. The Warranty Registration document is a triplicate form. The pages are for different purposes:
    - the top layer is yellow and is to be returned to **Trimax Mowing Systems** at the address shown.
    - the middle layer is blue and is retained by the agent who sold the machine to the purchaser.
    - the bottom layer is printed on white card and is to be retained by the purchaser.
5. **How to fill in the form:**
  - a. Do not separate the pages before completing the form. Place it on a flat, hard surface and complete the top (yellow) copy using a ball point pen. Press firmly and print clearly. The pages are self-inking, so the other layers will be filled in at the same time. When the form has been completed, the top two pages should be distributed as indicated and the bottom copy kept by the owner of the machine in a safe place.
  - b. **IMPORTANT!** Note that **Trimax Mowing Systems** may not be obligated to honour any warranty claim(s) on this product unless the Commissioning and Warranty Registration Certificate has been completed in full and the appropriate copy returned to **Trimax Mowing Systems** at the address shown on the form.
6. **My Trimax:**
  - a. On the **Trimax Mowing Systems** website there is a section called "**My Trimax**". This is available only to owners and users of **Trimax** mowers and to **Trimax** dealers.
  - b. Included in this section are **instructional videos**, **spare parts listings** including full parts drawings, **operator's manuals**, **service bulletins**, **spares instructions** detailing how to fit parts and options, and **reference material** including the full warranty statement.
  - c. To log on to **My Trimax**:
    - Go to the **Trimax** website at [www.trimaxmowers.com](http://www.trimaxmowers.com).
    - Click on "**My Trimax**"
    - Click on "**Register**" and fill in the form.

## 2. Notes About This Manual.

### 1. Language:

- a. This manual was originally written in New Zealand English, which is very similar to British English. Translations into other languages are derived from the New Zealand version.
- b. Names for parts and machine components have been kept as international as possible but some terms may be foreign to users in some markets. We apologise for any confusion.

### 2. Pictures:

- a. The pictures in this manual are typical examples of the mower and its parts. Some components may appear different from those on the mower being used but the pictures should still assist the operator to carry out the necessary operations.
- b. In some cases, guarding has been removed for clarity. Guarding or other parts shown may be optional in some markets and some items not shown may be standard in other countries.
- c. Where a tractor is shown it is used only to enhance the clarity of the instructions. Tractors differ significantly, and operators should be familiar with the tractor controls and their operation before attempting to attach or use the mower.

### 3. Instructions:

- a. The instructions given are applicable in most instances. Wherever possible, alternative instructions are given if differences between models or options significantly affect the procedures.

### 4. Conventions:

- a. The directions left, right, front and rear, are as seen from the driver's seat of the tractor facing in the normal direction of travel.
- b. On multi-spindled rotary mowers (including the **Striker**, **ProCut**, **Stealth**, **Snake**, **Pegasus**, **X-WAM**, and **Topper** ranges), **Trimax** convention is to identify the blade spindles as A, B, C, etc., starting from the left-hand side. On machines with more than one mowing deck, the left spindle on each deck starts with A.
- c. On **Trimax** flail mowers (including the **Warlord**, **Ezeemow** and **FlailDek** ranges), the cutting head is driven from one end of the mower. The end where the pulleys are enclosed within the belt guard is called the "drive end"; the other end is known as the "non-drive end".

### 5. Tractor Brand Impartiality:

- a. **Trimax Mowing Systems** is a privately-owned group of companies and has always been so. **Trimax** operates completely independently from all tractor manufacturers and does not favour any brand or model over any other. Front mounted mower decks may be tractor specific, but this is because those tractors are especially suited to a given application or because there has been customer demand for mowers to fit them.
- b. Where tractor brands or models are listed, no favouritism should be assumed based on the order in which they appear. In many cases the manual pages were written as and when tractors became available and suitable fitting kits were developed. Similarly, where particular tractor brands or models do not appear, this may simply mean the mower is not suitable for some engineering reason or that a mounting kit has yet to be developed.

### 6. Accuracy:

- a. Every effort has been made to ensure the information given in this manual is as accurate as possible at the time of publication. **Trimax Mowing Systems** will not be held liable for the consequences arising from any errors.

## 3. Safety.

### 1. Safety alert symbol.



This appears throughout this operator's manual wherever the operation being described requires special care or safety awareness. Read and obey all safety messages and follow instructions carefully.

### 2. Definitions.

The words below, where used in this manual mean the following:

- **DANGER:** Indicates a hazardous situation which, if not avoided, WILL result in death or severe injury.
- **WARNING:** Indicates a potentially hazardous situation which, if not avoided, could result in death or severe injury.
- **CAUTION:** Indicates a potentially hazardous situation which, if not avoided, MAY result in minor or moderate injury and property damage. It may also be used to alert against unsafe practices.
- **IMPORTANT:** Indicates an action which, if not adhered to, may cause damage to the machine.
- **NOTE:** Indicates an advisory message which could enhance the operator's understanding of the machine or ways to avoid situations that could cause premature wear.

### 3. Responsibilities.

- a. **YOU are responsible for the SAFE operations and maintenance of your Trimax machine.** You must ensure that you and anyone else who is going to operate, maintain or work around the machine is familiar with the operating and maintenance procedures and related safety information contained in this operator's manual. This manual will take you step by step through your working day and alert you to all recommended safety practices that should be adhered to when operating the machine.
- b. Remember, **YOU are the key to safety.** Good safety practices not only protect you but also the people around you. Make these practices a working part of your safety programme. Be certain that **everyone** operating this equipment is familiar with the operating and maintenance procedures and follows all the safety precautions. Most accidents can be prevented. Do not risk injury or death by ignoring recommended safety practices.
- c. Owners of mowing machinery must give operating instructions to operators or employees before allowing them to operate Trimax machinery and at least annually thereafter or as required by local occupational safety and health regulations.
- d. The most important safety device on **Trimax** equipment is a **safe operator**. It is the operator's responsibility to read and understand **all** safety and operating instructions in the manual and to follow these. All accidents can be avoided.
- e. In addition to the design and configuration of equipment, hazard control and accident prevention are dependent upon the awareness, concern, prudence and proper training of personnel involved in the operation, transport, maintenance and storage of equipment. Train all new personnel and review instructions frequently with existing workers. A person who has not read and understood all operating and safety instructions is not qualified to operate the machine. An untrained operator exposes themselves and bystanders to possible serious injury or death.
- f. Do not modify the equipment in any way. Unauthorised modification may impair the function and/or safety, could affect the life of the equipment and will compromise the warranty.
- g. Use only genuine replacement parts when repairing or reconfiguring the equipment. The genuine parts have been tested and approved on the machine in the type of conditions it will be used in. Nonstandard parts may render the machine unsafe.

**Think SAFETY!**  
**Work SAFELY!**

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**3a. Hazard Identification.**

HAZARD	DESCRIPTION	REMEDY
<b>Rotating blade hazard</b>	The blades rotate at high speed. Hands & feet are well protected when the machine is on the ground but must be kept clear when the mower decks are off the ground.	Do not approach or attempt to work on the machine while it is running.
<b>Thrown object hazard</b>	Blades on rotary & flail mowers must move at high speed to generate their cutting action. Foreign objects that enter the cutting chamber may turn into high speed projectiles. Such objects are contained within the cutting chamber when the mower is on the ground but may escape when it is lifted.	Do not operate the mower if bystanders are within 30 metres (100ft).  Be aware that lifting the mower while operating may allow projectiles to escape.
	Flails or fling-tip blades attach to blade carriers with special bolts that allow the blades to rotate freely. Loose or improperly fitted bolts may allow blades to break free.	Ensure flail & blade bolts are fitted correctly & tightened to the specified torque.
<b>Cut hazard</b>	Mowers are fitted with sharp blades which can cut hands when being fitted or handled.	Wear heavy gloves when working on the machine.
	Sheetmetal covers are made from thin metal that could cut hands.	
<b>Wrap hazard</b>	Any exposed rotating machine component is a potential wrap point. Unguarded PTO or drive shafts are examples. Long hair or loose clothing can be caught & wrapped around these parts, dragging the wearer into the machinery.	Ensure all guarding is in place.
		Do not wear loose clothing or clothes with draw strings, etc.
		Contain long hair.
<b>Crush hazard</b>	Tractor operated mowers are heavy. Many can be raised or lowered on the tractor linkage. Others have sections that can move independently from each other. Raised structures can drop and crush anything underneath.	Always place suitable stands under mower bodies, ensure transport locks have engaged correctly & safety devices have been fitted before inspecting or working under a raised mower or raised sections of a mower.
		Wear steel capped safety boots.
<b>Bystander hazard</b>	People particularly children, are unpredictable and may run into the operating area unexpectedly.	Be aware of bystanders in the area, particularly children. Stop the mower if people approach within 30 metres (100ft).
<b>Fire hazard</b>	Grass clippings blow about & can be trapped in machinery. Hot tractor engines & exhausts can ignite the clippings & extensively damage the tractor & other property nearby.	Inspect inside tractor engine covers & remove clippings frequently, especially when operating in dry conditions.
	Clippings trapped under the transmission covers can ignite in hot dry conditions.	Carry a fire extinguisher on the tractor.  Lift mower covers & clean out clippings regularly.

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<b>Noise hazard</b>	Mowers are designed to operate outdoors. The operating position is seated in the driving seat of the tractor. Noise generated by the tractor & mower will vary considerably depending upon the tractor being used, the terrain & conditions.	Always use ear protection when operating the mower if noise exceeds safe working limits.
<b>Dust hazard</b>	Blades rotating at high speed stir up dust, particularly in hot dry weather.	Wear a dust mask when operating the machine in dry conditions.
		Wear eye protection
		Show consideration to others. Shut doors & windows in buildings nearby
<b>Transport hazard</b>	A tractor towing a mower is considerably heavier than the tractor on its own & is harder to stop.	Be aware. Drive defensively.
	Mowers attached to light tractors may cause the tractor wheels to lift off the ground when braking or traversing bumps	Use a suitable tractor. Fit approved ballast weights if necessary.
	Tractors often travel slower than other traffic.	Fit all signs, flags or beacons as required by local laws. Turn on headlights, tail lights & hazard flashers. Comply with local driving regulations. Pull over where safely possible to allow faster traffic to pass.
<b>Pinch hazard</b>	Pinch points occur where one object is moving in a circle & another moves close to it. Belt drives create pinch points where the belt is moving onto the pulley.	Ensure all guards are fitted correctly before operating the machine.
<b>Shear hazard</b>	Shear hazards occur when the edges of two surfaces move against each. Tractor linkages & mounted mowers move in relation to each other. Mowers with multiple decks have many sections that move independently from each other as the decks are lifted & lowered & when the machine is following ground contours. Fingers or limbs could be severed or seriously injured if trapped between moving parts.	Keep clear of machinery when it is moving.
		Ensure all guards are fitted.

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<b>Hydraulic hazard</b>	Hydraulic systems such as hydraulic drives or lift rams & the tractor's auxiliary hydraulic system are operated by fluid under enormous pressure. Leaks can result in fine high-pressure jets that can penetrate soft tissue with ease. Hydraulic oil is also toxic to the body & must be surgically removed to prevent gangrene.	Never use hands or fingers to inspect hydraulic hoses. Hold a piece of paper, cardboard or wood as a target when inspecting for hydraulic leaks.
<b>Grease hazard</b>	The application of grease to bearings and moving parts on the mower could result in grease getting in eyes or into cuts on hands.	Wear eye protection.
		Wear appropriate gloves.
<b>Free-wheeling parts hazard</b>	Heavy revolving parts continue to rotate after the power is shut off. Flail & rotary mower blades, pulleys & driveshafts may keep turning for several seconds after the drive is disengaged. Injury can occur when operators attempt to work on the machine before all moving parts have stopped.	Wait for all moving parts to stop before approaching the machine.
<b>Slips, trips &amp; falls hazard</b>	Slips & falls can result from slippery surfaces or cluttered work areas. Mowers parked after operating can leak large puddles of water onto the ground. Care is required when moving around them.	Take care when moving around the mower.
		Practice good housekeeping. Keep floors clean & dry.
		Put away anything not required for the job.
		Wear shoes with slip-resistant soles.

### 3b. Safety Labels.

#### 1. General:

- a. Always keep safety labels and signs clean and legible always.
- b. Replace safety labels and signs that are missing or have become difficult to read.
- c. Any parts that are replaced must also show the same safety decals as before if removed.
- d. Safety labels are available from your dealer parts department or from Trimax Mowing Systems. They come in a single sheet which contains all the labels used on the machine.

#### 2. How to install Safety Labels:

- a. Use scissors to cut out the label required. Leave some material outside the cut line around the label.
- b. Be sure the installation area is clean and dry.
- c. Decide on the exact location before removing backing paper.
- d. Peel back the backing paper and fold it back to expose a small area of the sticky backing.
- e. Position the label as required and press the area with the exposed sticky backing onto the required surface.
- f. Slowly peel the backing paper from the rear while evenly pressing the label onto the surface.



## 4. Label Identification.



Types of labels and locations on the equipment are shown in the following illustrations. Familiarise yourself with the various pictorial safety signs, the type of warning, and the area or function related to that area that requires your SAFETY AWARENESS.

If safety labels have been damaged, removed, become illegible, or if replacement parts have been fitted without labels, new ones must be applied. New labels are available from your authorised dealer or direct from **Trimax Mowing Systems**.

### 4a. What Labels Mean.



**A P/N 424-101-080**

**Label A, left:**

**Live machinery hazard.** Stop the tractor engine and remove the key before carrying out any maintenance.

**Label A, left centre:**

**Follow instructions.** Read or refer to the operator's manual for instructions.

**Label A, right centre:**

**Pinch point.** Belts moving around rotating pulleys may shear fingers or limbs. Keep hands and limbs clear of drive belts and pulleys.

**Label A, right:**

**No step.** Do not stand on stainless steel covers.



**C. P/N 424-100-950**

**Label C, left:**

**Thrown object hazard.** Fast moving blades may throw objects that could cause death or severe injury. Keep well clear of the machine when it is operating. **Label B, right:**

**Cut hazard.** Rotating blades could sever toes or fingers. Keep well clear of the machine when the blades are turning.

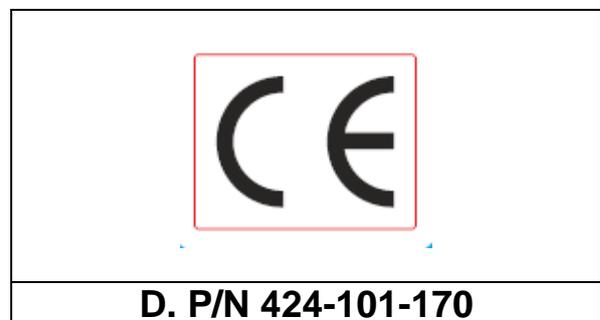
Blades rotating at high speed will cut through body parts. Keep feet and limbs away from the cutting chamber area. Keep well clear of the machine when it is operating.



**B. P/N 424-000-163**

**Label B:**

**No water blasting.** Components could be damaged by high pressure water aimed directly at this area.



**D. P/N 424-101-170**

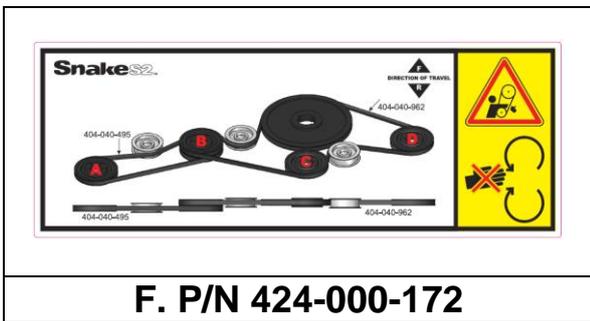
**Label D:**

**CE mark.** Indicates that this product complies with the European Machinery Directive.



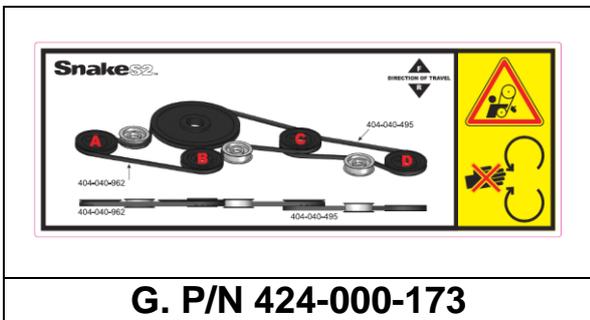
**E. P/N 424-000-030**

**Label E:**  
**Belt setup.** Ensure the Rear Deck belts are run around the spindles as shown.



**F. P/N 424-000-172**

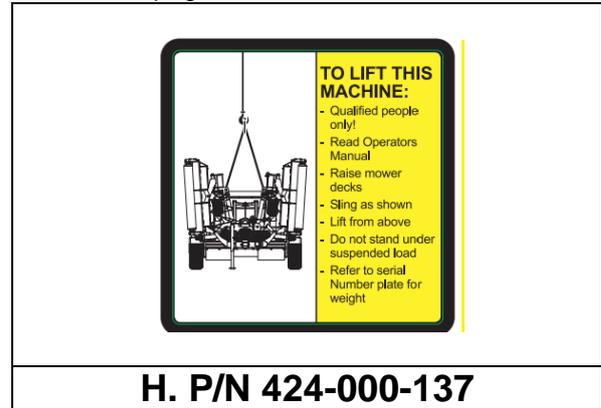
**Label F:**  
**Belt setup.** Ensure the Left-hand Deck belts are run around the spindles as shown.



**G. P/N 424-000-173**

**Label G:**  
**Belt setup.** Ensure the Right-hand deck belts are run around the spindles as shown.

Label positions are shown on the drawings on the next page.



**H. P/N 424-000-137**

**Label H:**  
**Lifting Points.** Use the specified lifting points whenever lifting the mower.



**I. P/N 424-000-031**

**Label I, left:**  
**Overspeed danger.** Parts could fly off if blades are turning too fast. Ensure the PTO never runs faster than 540rpm.  
**PTO rotation direction.** Some tractor PTOs may rotate in the wrong direction. Ensure the PTO runs in the direction shown by the arrow.



**J. P/N 424-101-370**

**Label J:**  
**Shear hazard.** Separate parts of the machine move in ways that could sever fingers or limbs. Keep hands and limbs well clear.

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NOTE: Decal F is under the covers  
Snake S2 400 shown above.

## 5. Declaration of Conformity.



### EC DECLARATION OF CONFORMITY

**Manufacturer Addresses:**

Trimax Mowing Systems (NZ) Ltd  
70 Maleme Street  
Tauranga 3112  
New Zealand

Trimax Mowing Systems Ltd  
40 Lower Farm Road, Moulton Park  
Northampton NN3 6XF  
United Kingdom

**Model Numbers:**

721-320-200, 721-320-201, 722-320-200, 722-320-201  
721-400-200, 721-400-201, 722-400-200, 722-400-201

**Machine Name:**

Snake S2

**Description:**

Triple deck trailed multi-spindled rotary roller mower

**Serial Numbers:**

721-\*\*\*-\*\*\*-0001 to 9999, 722-\*\*\*-\*\*\*-0001 to 9999

**Cutting width:**

3.23m or 3.99m

**Declare that the product conforms to:**

2006/42/EC (The Machinery Directive)

**Harmonised standards used:**

ISO 4254-1:2013  
ISO 17101-1:2012  
ISO 12100:2010  
ISO 11684:1995  
ISO 3600:2015

**Person who is authorised to compile the technical file and who is established in the Community:**

Rod Kennedy, Operations Manager  
Trimax Mowing Systems Ltd  
40 Lower Farm Road, Moulton Park  
Northampton NN3 6XF  
United Kingdom

**The place and date of the declaration:**

Trimax Mowing Systems (NZ) Ltd  
70 Maleme Street  
Tauranga 3112  
New Zealand  
February 2019

**Signature of the person empowered to draw up the declaration on behalf of the manufacturer and who holds the technical documentation:**

Jason Cheetham, Chief Engineer  
Trimax Mowing Systems (NZ) Ltd  
New Zealand

A handwritten signature in blue ink, appearing to read 'Jason Cheetham', written over a horizontal line.

## 6. Product Description.

**Trimax Snake** mowers are specifically designed to suit modern compact tractors in the 26-56kW (35-75hp) range and are ideal machines for undulating terrain such as golf roughs. Innovative engineering delivers outstanding finish coupled with impressive versatility, high productivity, low running costs and longevity.

The mower has a cutting width of 3.23 metres (127") or 3.99 metres (157"). It consists of three separate roller mower decks attached to a central chassis and towed by a tractor. **Trimax Snake** mowers combine efficient wide-area mowing with excellent contour following and outstanding manoeuvrability.

The chassis connects to the tractor drawbar and has its own transport wheels. Each mower deck attaches to the chassis via an outrigger and is free to articulate in six directions. Outriggers are equipped with hydraulic rams to lift the mower decks which automatically lock into the transport position for safe transportation between sites on public roads.

Each mowing deck is a multi-spindled rotary mower with full-width rollers front and rear. The rollers enable accurate contour following and allow the mower decks to cross concrete pathways or mow along the edges of banks or bunkers. They also contain debris within the cutting chamber for unmatched safety. Fitted with **Trimax's** exclusive **LazerBladez™** these technically advanced decks can mow at high ground speeds whilst producing a cut and finish to equal cylinder mowers and offering the ability to cut rampant spring growth.

Drive for the mower decks is provided by the tractor power take-off which is connected via a driveshaft to a 4-way gearbox on the chassis. Secondary driveshafts connect to individual deck gearboxes where shock-absorbing belts distribute power to the blade spindles.

Please read this operator's manual before operating the machine or carrying out adjustments or maintenance. It explains how to operate the machine safely and how to configure it for maximum performance in the field.

If you follow the operating instructions and maintenance programme your **Trimax Snake** mower will provide many years of productive, trouble-free service.



## 7. Specifications.

GENERAL		
MODEL	Snake 320	Snake 400
Cutting width	3234mm (127")	3994mm (157")
Overall width	3372mm (133")	4112mm (162")
Overall length (drawbar retracted)	3500mm (138")	3500mm (138")
Transport width (standard road wheels)	2100mm (82 1/2")	2140mm (84 1/4")
Transport height	1820mm (71 1/2")	2215mm (87 1/5")
Transport length (drawbar retracted)	3140mm (124")	3140mm (124")
Approximate weight <sup>1</sup>	1250kg (2756 lb)	1390kg (3064 lb)
Minimum recommended PTO power <sup>2</sup>	26kW (35hp)	33kW (45hp)
Maximum tractor size	56kW (75hp)	56kW (75hp)
Uncut circle diameter <sup>3</sup>	Zero turn possible with some tractors	Zero turn possible with some tractors
CHASSIS		
MODEL	All Models	
Towing hitch	Forged high tensile steel, adjustable	
Driveshaft type	1-3/8" x 6-spline couplings both ends, 80 degree constant velocity joint at tractor end	
PTO speed	540rpm	
Gearbox type	R140	
Gearbox ratio	1:1	
Gearbox oil	EP90, 1.5 litres	
Lift rams	50.8 x 25.4mm (2" x 1")	
Hydraulic system	Hydraulic lift rams operated by tractor auxiliary hydraulic control	
Hydraulic connection	1/2" BSP quick-release male probe	
Outrigger hinge bearings	High strength reinforced nylon, 63.6mm (2.5") inside diameter	
Transport locks	495mm (19.5")	
Transport lock release	Automatic mechanical hooks	
Standard road wheels & tyres	Rims: steel, 114.3mm (4.5") PCD x 5 stud pattern 20x10.00-10 6-ply turf tyres	
Tyre pressures	210 / 230kPa (30 / 32psi)	
Grease points	Outrigger hinges x6 Side deck pitch pivots x4 Lift rams x3 Parking jack x1 Rod ends x2 Primary driveshaft - see instructions	
<ol style="list-style-type: none"> <li>1. Weights are approximate only and depend upon options fitted, see section 9</li> <li>2. Depends upon tractor and drawbar length</li> <li>3. Not all options available in some markets</li> <li>4. Minimum required for trim mowing on level ground Snake 320- 30-37kW (40-50hp)</li> <li>5. Minimum required for trim mowing on level ground Snake 400- 35-42kW (45-55hp)</li> </ol>		

**TRIMAX SNAKE S2 OPERATORS MANUAL**  
**ENGLISH EDITION**  
 ©Trimax Mowing Systems (NZ) Ltd

MOWER DECKS		
MODEL	Snake 320	Snake 400
<b>Cutting width (left/centre/right)</b>	1160/1160/1160mm (46/46/46")	1540/1160/1540 (61/46/61")
<b>Cutting height range</b>	10 – 90mm (3/8" - 3.5")	
<b>Driveshaft type</b>	T40, 1-3/8" x 6-spline couplings	
<b>Gearbox type</b>	R240	
<b>Gearbox ratio</b>	1:3.1	
<b>Gearbox pulley diameter</b>	322mm (12.6")	
<b>No. of blade spindles (left/centre/right)</b>	3 / 3 / 3	4 / 3 / 4
<b>Spindle pulley diameter</b>	156mm (6.1")	
<b>Idler pulley diameter</b>	105mm (4.2")	
<b>Blade tip diameter</b>	400mm (15.75")	
<b>Blade types (per spindle) - standard - options</b>	<b>Trimax LazerBladez™</b> up-turned fling-tip blades	
<b>Drive belt type</b>	B-Section back tension	
<b>Number of drive belts</b>	3	5
<b>Drive belt tensioning</b>	Cam action flat pulley back idler Auto belt tensioner	
<b>Blade spindle construction</b>	Maintenance-free, welded steel housing, large diameter high tensile shaft, heavy duty ball bearings, anti-wrap protection	
<b>Idler bearings</b>	Two ball bearings each with double lipped contact seals	
<b>Transmission covers</b>	Stainless steel	
<b>Transport system</b>	Full width front & rear rollers	
<b>Rollers</b>	140mm (5.5") diameter, ends shaped for scuff protection	
<b>Roller bearings</b>	35mm (1-3/8") heavy duty self-aligning ball bearings, direct greasing Replaceable LocTek™ Roller Stub Sleeves	
<b>Deck Pivot Attachments - roll axis - pitch axis, side decks - roll axis, rear - pitch axis, rear deck</b>	20mm (0.79") high tensile bolts, maintenance free composite bushes, nyloil thrust washers 20mm (0.79") high tensile pins, greaseable steel bush system, nyloil thrust washers 20mm (0.79") high tensile bolts, maintenance free composite bushes, nyloil thrust washers 16mm (0.63") high tensile bolts, reinforced nylon bushes, nyloil thrust washers	
<b>Grease points (per deck)</b>	Roller bearings x4 Height adjusters x4 Driveshafts - see instructions	
<b>Gearbox oil</b>	EP90, 1.5 litres per gearbox	
<b>Options*</b>	Anti Wear Skids Drawbar clevis Drawbar safety chains Remote transport lock release Road kit (mudguards, tail lights, etc.) Wire roller scrapers	

## 8. Machine Identification.

### 1. Model Designation:

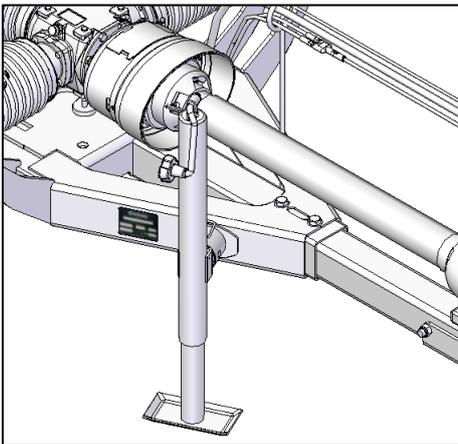
- a. This operator's manual covers **Trimax Snake** mowers with model numbers  
721-320-200, 721-400-200, 721-320-201, 721-400-201  
722-320-200, 722-400-200, 722-320-201, 722-400-201

### 2. Serial numbers:

- a. The serial number ranges covered by this operator's manual are:  
721-320-200-0001 to 9999, 721-400-200-0001 to 9999  
722-320-200-0001 to 9999, 722-400-200-0001 to 9999

### 3. Locate the serial plate:

- a. Serial number plate is on the front of the superstructure in front of the parking jack.
- b. Avoid errors - **always quote the serial number when ordering parts.**



## 9. Equipment Matching.

Safe and reliable operation of **Trimax Snake** depends on partnering with a suitable tractor.

### 1. Tractor power:

- a. Minimum power requirement is a guide only. Requirement varies with the type of work and the terrain.
- b. Maximum tractor power should not exceed 56kW (75hp).

Model	Cutting Width	Minimum Power Required	Maximum Tractor Power
320	3.2m (127")	26kW (35hp)	56kW (75hp)
400	4.0m (157")	33kW (45hp)	56kW (75hp)

### 2. Tractor drawbar:

- a. The **Snake** tow hitch can be configured to fit most tractor drawbars and powered pick-up hooks.
- b. Local tractor drawbar variants may be available. Consult your tractor dealer if your tractor drawbar type is not covered by the following instructions.

### 3. Power Take-Off (PTO) configuration:

- a. Tractor must have a 1 3/8", 6-spline, 540rpm PTO outlet to fit the driveshaft supplied with mower.
- b. The PTO must rotate clockwise when viewed from behind the tractor.
- c. Do not use shaft adapters.
- d. PTO speeds faster than 540rpm will cause damage and could be dangerous.

### 4. Auxiliary hydraulic connections:

- a. At least one single or double-acting hydraulic outlet is required.
- b. The outlet used must be able to be set in float position to allow accurate contour following.
- c. Standard 1/2" male quick-release couplings should suit most tractors. Consult your tractor dealer or hydraulic specialist if the fittings are not compatible.

## 10. Options.

### 1. General:

- a. Several options can be specified at the time of ordering or added later as kits.
- b. Some affect the way the mower is operated.
- c. Alternative instructions are provided where appropriate.

### 2. Options available:

- a. Anti Wear skids (AWS).
  - Help to prevent wear and damage to the side channels
  - Help to ensure smooth mowing at low cut height over corrugated or bumpy terrain
- b. Electric remote transport lock release.
  - Replaces the standard transport lock release rope with a push-button in the tractor cab.
  - Enables raising or lowering the left and right mower decks individually where required.
- c. Drawbar clevis fittings.
  - Tailor the mower tow hitch to suit tractor drawbar configuration.
- d. Drawbar safety chains.
  - Secure mower to tractor in the event of drawbar separation.
- e. Road lighting.
  - The tail lights supplied have red tail brake lenses, amber direction indicator lenses and connecting plugs that suit European, UK, Australasian and Asian standards.
- f. Roller scrapers.

### 3. Fitting instructions:

- a. Parts or kits supplied separately have set-up instructions included.

## 11. Instructional Videos & other Support

Instruction videos and other support material that cover many of the following operations are available on the **My Trimax** section of the **Trimax Mowing Systems** website. See section 1a for details of how to access this.

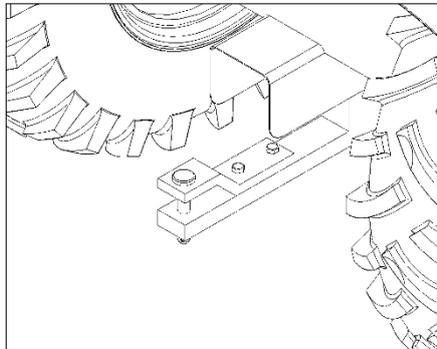
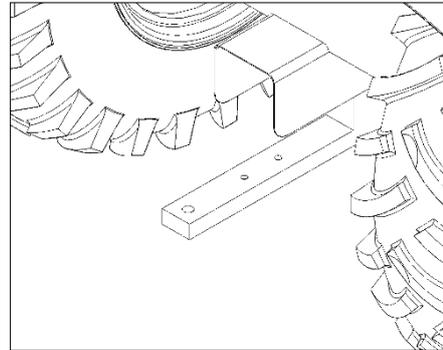
## 12. Setting Up.

### 12a. Attach The Mower To The Tractor.

Snake mowers are towed behind the tractor and connect to the tractor's drawbar.

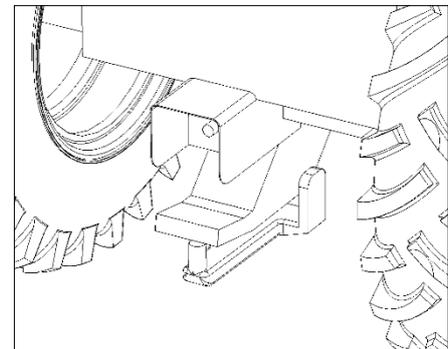
#### 1. Tractor drawbar types:

- a. Tractors can be fitted with different types of drawbar or tow hitch.
- b. Basic drawbars come in two styles, single tongue or clevis types.



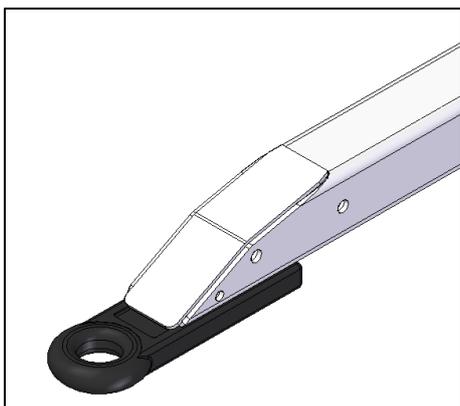
- c. Single tongue types may have bolt-on fittings to convert them into clevis types.

- d. Many European tractors have a powered hitch, while some sold in France may have a "French piton".



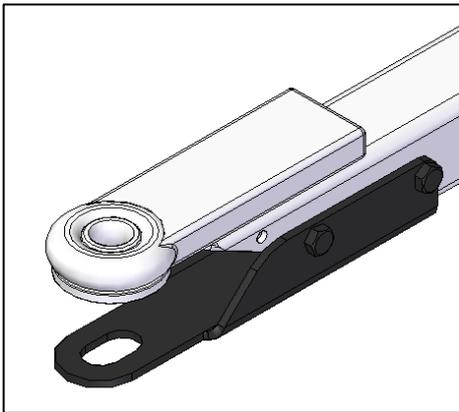
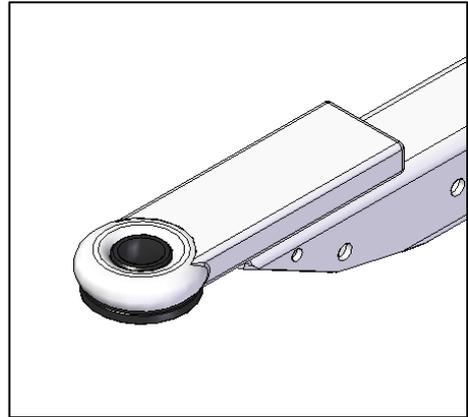
#### 2. Mower tow hitch adapters:

- a. Parts for adapting the tow hitch may be supplied as options. Consult your dealer or **Trimax Mowing Systems** for advice.
- b. The mower tow hitch is configured to suit different tractor drawbars.



- c. The forged towing eye suits powered hitch and "French piton" types.

d. A plastic adapter is fitted for clevis drawbars.

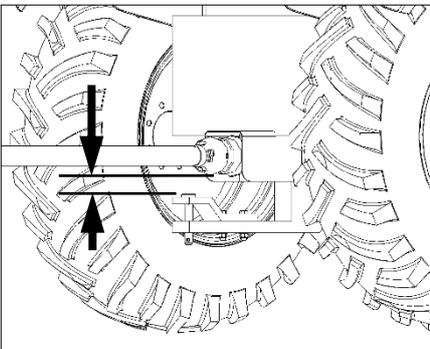


e. A bolt-on clevis converts the mower to suit single tongue tractor drawbars.

**NOTE: The clevis MUST be fitted when the mower is used with a single-tongue drawbar.**



**WARNING!** The correct towing eye setup **MUST** be used to suit the tractor drawbar type, or the machine may break loose causing serious damage, injury or death.

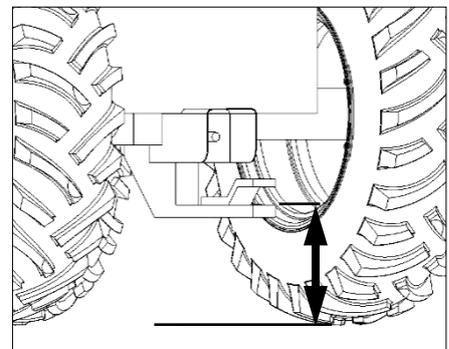


**3. Check driveshaft clearance:**

- a. Connect the large end of the primary driveshaft to the tractor's PTO outlet. Place a support under the other end to hold the driveshaft approximately level.
- b. Ensure the shielding on the driveshaft will clear the drawbar and the drawbar pin.
- c. If there is less than 25mm (1") clearance it may be possible to adjust the height or increase clearance by fitting the drawbar up the other way.
- d. Remove the driveshaft when finished.

**4. Measure drawbar height.**

- a. Measure from the ground to the top of the lower tongue or the bottom of the inside of the pickup hook. Regardless of PTO shielding clearance (above) this measurement **MUST be between 200 and 495mm (8.5 – 19.5")**. On tractors with low profile turf tyres this may not be achievable. If so, fit standard diameter tyres or use another tractor.

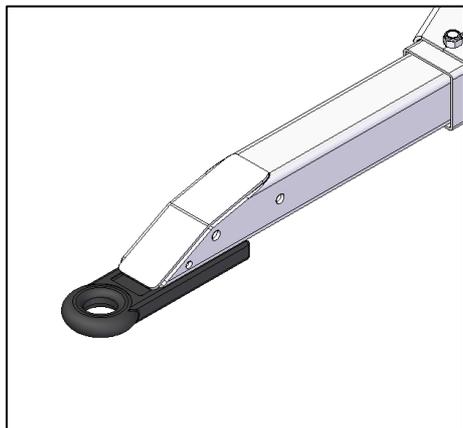


**5. Adjust mower tow hitch height and length:**

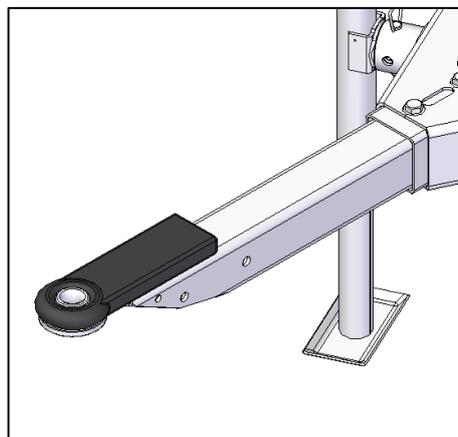
- a. The tow hitch is attached to the mower with two bolts, each secured with a self-locking nut.
- b. The hitch length can be adjusted. Set it in the shortest position initially.
- c. Tow hitch height can be changed by inverting the tow hitch.



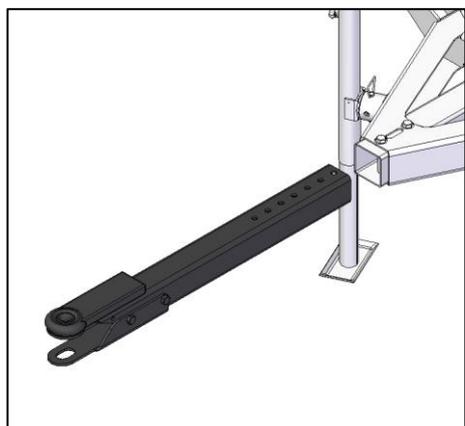
**IMPORTANT!** The mower drawbar must be the correct height from the ground. If the front of the mower is too low, movement of the mower decks will be affected and significant damage may result. This damage will not be covered by warranty. If the front is too high the mower decks may not follow ground contours properly.



d. If the tractor drawbar height is **less than 350mm (14")** fit the tow eye with the forged towing eye underneath.



e. If tractor drawbar height is **350mm (14") or greater** fit the tow eye with the forging on top.



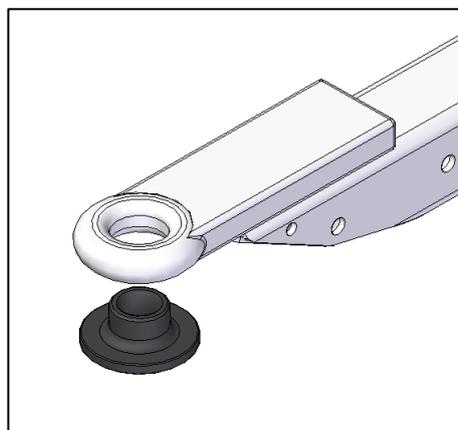
f. To change the tow hitch position, remove the self-locking nuts and remove the mounting bolts. This may need to be done when setting the PTO length, which is explained later in the manual.

g. To invert the tow hitch, withdraw it from its socket, turn it over and refit it to the socket.

h. Align the holes for the desired length and refit the bolts and self-locking nuts.

#### 6. Fit the plastic tow-eye bush:

- a. If the tractor has a single tongue or clevis type drawbar the plastic bush provided **must** be fitted to prevent excessive movement and wear.
- b. Fit the bush from underneath so the large flange prevents metal-to-metal contact with the drawbar.
- c. Use a mallet if the bush is tight.





**WARNING!** If the mower is attached to a tractor with a single-tongue drawbar the clevis plate **MUST** be used or the mower may disconnect itself from the tractor.



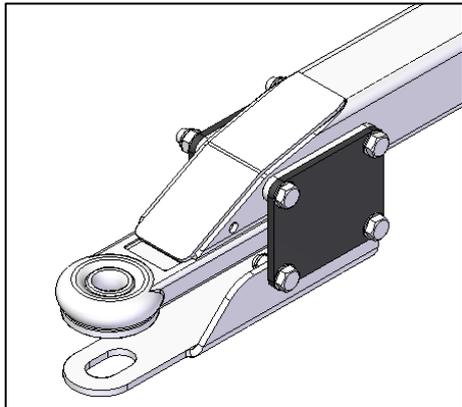
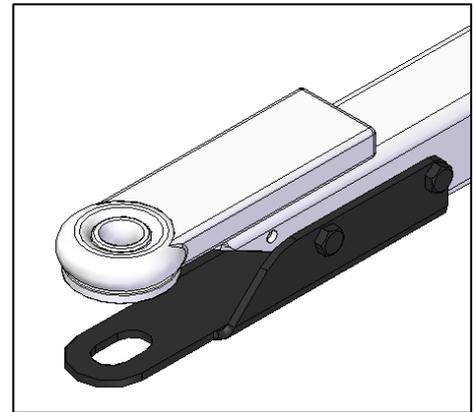
**WARNING!** The clevis plate must always be fitted **UNDERNEATH** the towing eye. If the tow hitch is turned over to suit a different tractor the clevis plate **MUST** be unbolted and fitted in the correct position. The clevis plate is not designed to carry the weight of the mower and will fail if fitted above the towing eye.



**WARNING!** The clevis must be removed if the tractor has a clevis type drawbar. Damage will result and the mower may break free if clevises are fitted to both the mower and tractor.

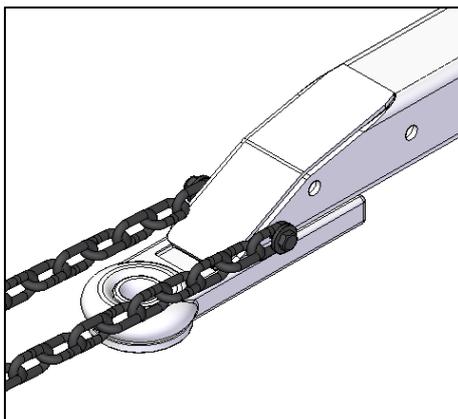
#### 7. Fit the clevis:

- a. When the towing eye is on top the clevis bolts directly to the tow hitch.
- b. Position the clevis as shown.
- c. Secure it with two M16x140 bolts supplied.
- d. Fit spring washers and nuts to the bolts and tighten securely.



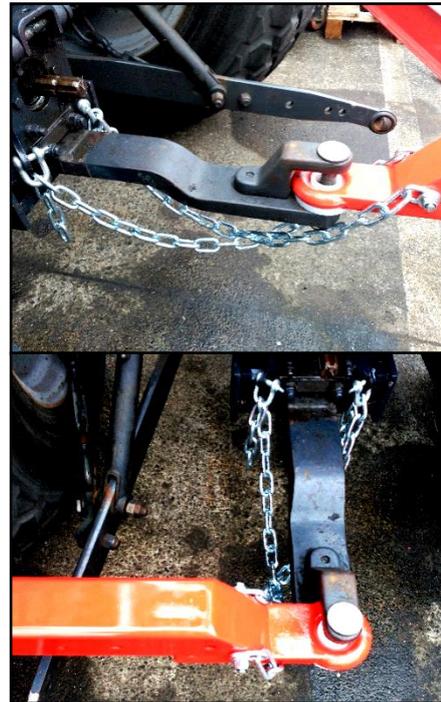
- e. Adapter plates must be used to fit the clevis when the towing eye is underneath.
- f. Each adapter plate has a spacer welded to it. This fits against the clevis mounting holes in the tow hitch (top arrow).
- g. Pass two bolts through the holes in the clevis adapter plate, the tow hitch and the other adapter plate.
- h. Fit spring washers and nuts to the bolts. Do not tighten.
- i. Fit the clevis between the two adapters as shown.
- j. Fit spreader tubes between the sides of the clevis and align them with the bolt holes (bottom arrow).
- k. Fit the other two bolts through the adapters, clevis plates and spreader tubes. Fit spring washers and nuts.
- i. Securely tighten all bolts.

#### 8. Determine the length of the towbar safety chains.



- a. In some countries it is compulsory to fit safety chains to ensure the mower does not separate from the tractor in the event of drawbar coupling failure.
- b. Breakaway safety chains may or may not be fitted when the mower is delivered. The following instructions assume the chains are already attached to the tow hitch as shown.
- c. It is easiest to remove the tow hitch from the mower to establish the length of the chains. Remove the tow hitch drawbar (see above).
- d. Attach the tow hitch to the tractor drawbar.
- e. Cross the chains and attach them to appropriate mounting points on the tractor using the D shackles provided.

- f. The chains should pass underneath the mower tow hitch and be adjusted for length to prevent the trailer's drawbar hitting the ground if the mower is detached from the tractor.
- g. The tow hitch must be able to articulate freely without the chains fouling any parts on the tractor drawbar or tow hitch. Move the tow hitch from its extreme left and right positions to ensure free movement.
- h. Remove the chains and tow hitch from the tractor.
- i. Excess chain can be removed if desired.
- j. Refit the tow hitch to the mower. Ensure the tow hitch is the right way up.



#### 9. Mount the Remote Unlock (if fitted):

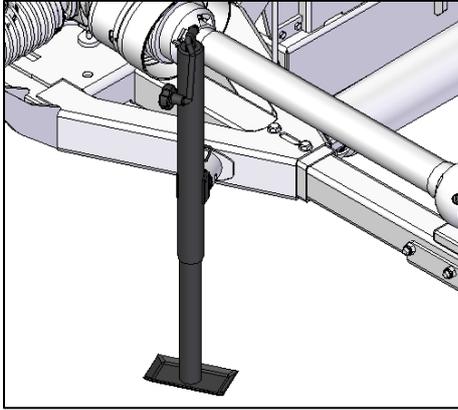


- a. The **Remote Unlock** controller must be fitted to the tractor where the operator can easily reach it while driving and operating the auxiliary hydraulic valves. This could be on the dashboard or the right-side cab window or mudguard, for example, where the connecting cable will not be snagged or tripped over.
- b. Attach the controller to a flat surface using the industrial strength Velcro supplied. Once the location has been decided, thoroughly clean the mounting surface, peel the backing off the Velcro and stick it firmly onto the surface. Allow the adhesive to cure for 24 hours before attempting to remove the control unit.

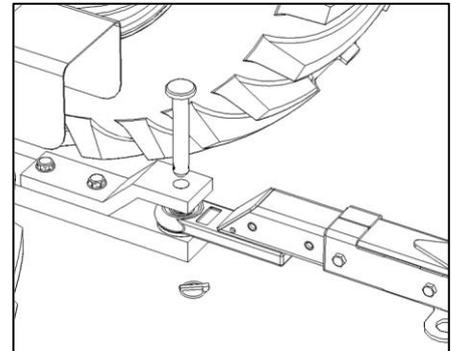
**10. Connect the mower to the tractor.**

**NOTE: If the tractor is fitted with a powered hitch, see the tractor operator's manual for instructions.**

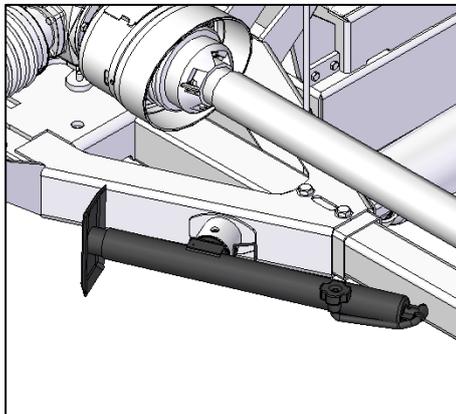
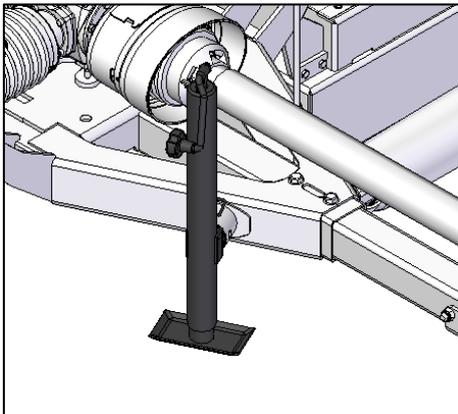
- a. The three-point linkage arms are not needed. Raise them to maximum height. Tie them together to prevent tyre contact.



- b. Use the screw jack on the mower to adjust the tow hitch height to match the tractor drawbar.  
c. Ensure any bystanders are well clear.  
d. Reverse the tractor up to the mower until the drawbar is aligned with the mower tow hitch.  
e. Ensure all tractor controls are in neutral, apply the parking brake and stop the tractor engine before dismounting.



- f. Fit the drawbar pin.  
g. Fit the retaining lynch pin or locking device to retain the drawbar pin.  
h. Wind the jack clear of the ground.  
i. Swing jack into the storage position



**11. Attach the breakaway safety chains (if fitted):**

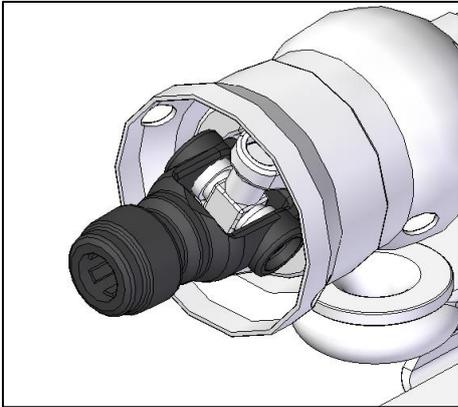
- a. Connect the breakaway safety chains as described above.  
b. Ensure the D-shackles are tightened securely.



**IMPORTANT!** Ensure the front of the mower chassis is the same height as the rear. If the chassis is not level, mower deck movement may be restricted and damage could result that may not be covered by warranty.

**12. Fit the primary driveshaft:**

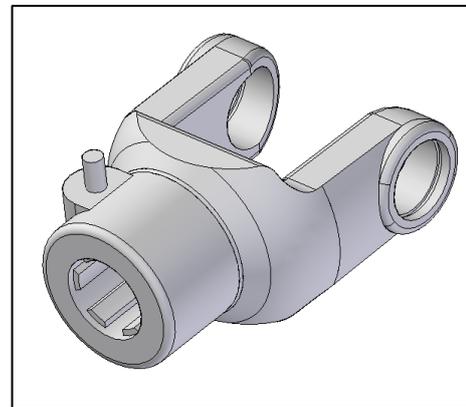
- a. The **primary driveshaft** transmits power from the tractor's power take-off to the mower.
- b. It is fitted with a constant velocity joint at the tractor end which allows the driveshaft to operate at extreme angles. **The constant velocity joint MUST be fitted to the tractor.**
- c. Rest the large end of the driveshaft on the chassis drawbar.



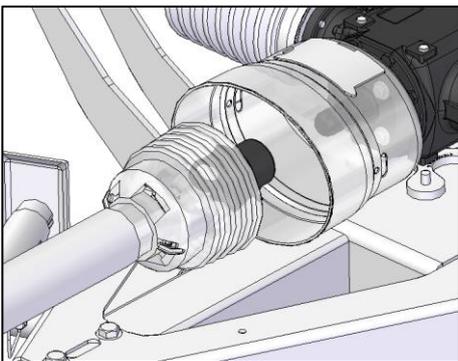
d. The constant velocity joint coupling has a spring-loaded external locking collar that operates balls inside the yoke. These locate in the groove in the tractor PTO shaft to secure the driveshaft.

e. Hold the collar back towards the universal joint while pushing the coupling onto the tractor's PTO shaft.

f. The collar will snap back to the locked position when fully engaged. Check by pulling and pushing the driveshaft to ensure that it will not move.



- g. The smaller universal joint coupling has a spring-loaded locking pin that locates in a groove in the gearbox shaft to secure the driveshaft. Press the spring-loaded pin and hold it in.



h. Offer the driveshaft to the gearbox input shaft, align the splines and slide the yoke onto the gearbox spline. (Picture shows guards cut away for clarity.)

i. The locking pin will pop out when it aligns with the groove in the shaft.

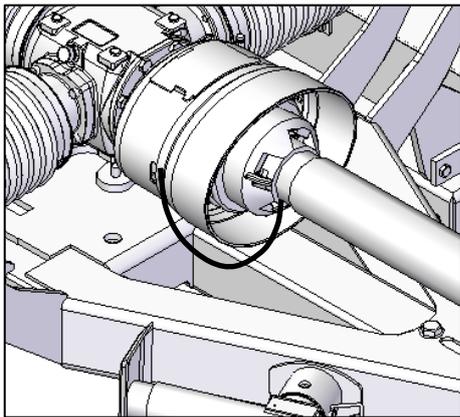
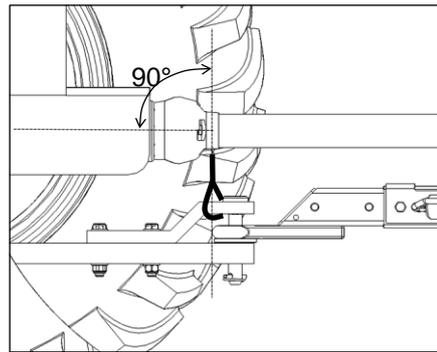
j. Check the driveshaft is properly retained by pushing and pulling. It must remain fixed in position.

**NOTE:** The small hatch on top of the gearbox safety shield can be opened for access if required.



**DANGER!** Never operate the machine unless the locking pin has secured the driveshaft correctly

k. Attach the driveshaft safety shield chain at the tractor end to a suitable point on the tractor to prevent the covers rotating. **The chain should be as close to 90 degrees as possible to the driveshaft.** Leave plenty of slack to allow for mower articulation. (Picture shows connection to tractor drawbar. Linkage arms or other parts of the tractor may be more suitable.)



l. Attach the mower end safety chain to the plastic shield on the primary gearbox.

m. Correct fixing of PTO safety chains.



Fig. 1 – CV/Wide-angle PTO SHAFT (type a)

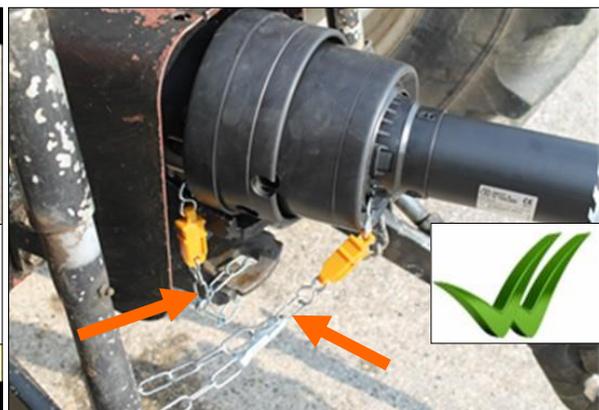
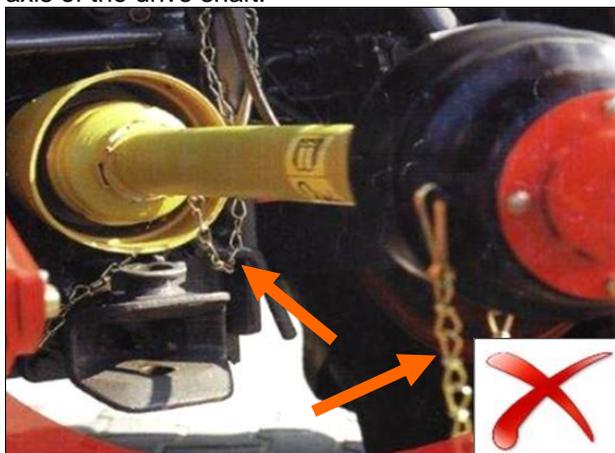


Fig. 2 – CV/Wide-angle PTO SHAFT (type b)

n. Incorrect fixing of PTO safety chains.

This type of installation can cause the chain to wrap around the shield bellows resulting in a breakage of the safety guard. The chain is too loose and has not been fixed at 90 degrees to the axis of the drive shaft.



### 13. Setting Mower Tow Hitch Length:

There is a short **instructional video** that shows the following procedure. Go to the **My Trimax** section of the **Trimax Mowing Systems** website. See section 1a for details of how to do this.

There is also a **driveshaft maximum angle gauge** on the last page of this operator's manual. This can be used to measure driveshaft angles when carrying out the following procedure. It is transparent and can be used either way up depending whether the mower is to the left or right of the tractor.

#### To set the mower tow hitch length:

- a. Ensure the mower tow hitch is **fully extended**. Adjust it if necessary as detailed previously.
- b. Work on a flat area. Position the mower so it is directly in line behind the tractor.
- c. There is a long green, red and yellow label on the inner tube of the driveshaft safety shield. Turn the cover tubes until this is on top. It has centimetre marks on it. Note the measurement on the driveshaft label where the outer cover overlaps the label.



- d. **Have the angle gauge handy.** It is used by leaning over the back of the tractor seat and looking through the transparent page directly down onto the driveshaft. Slowly reverse the tractor to position the mower on full lock. Watch carefully to see what limits the mower turning:
  - The mower tow hitch may contact the tractor tyre.
  - The driveshaft may contact the tyre.
  - **If nothing on the mower contacts the tractor tyre, stop when the driveshaft reaches an angle of 75 degrees.** The driveshaft must **NEVER** be allowed to exceed an angle of 80 degrees.
- e. At maximum turn, note the measurement on the driveshaft label where the outer cover overlaps it.
  - If this is less than before (ie. the driveshaft is shorter) leave the mower in the full turn position.
  - If the measurement is more than before (ie. the driveshaft is longer), re-position the mower directly in line with the tractor.
- f. The aim is to shorten the mower tow hitch as much as possible **without covering any of the RED section of the label**. As long as green is visible the mower tow hitch is not too short. Disconnect the mower from the tractor and adjust the mower tow hitch length as shown in section 11c. Reconnect the mower to the tractor and start again from step 2 above.
- g. **If only red is visible the mower tow hitch must be extended.** (This is unlikely if it is already fully extended.)
- h. Now manoeuvre the mower into the other position (maximum turn if it was in-line, in-line if it was at maximum turn).
- i. Check that only green is visible. **If yellow is visible (beyond the 43cm mark) there is insufficient driveshaft overlap and the driveshaft will wear rapidly. The machine should not be used.** Contact Trimax Mowing Systems for technical advice.
- j. Once the correct mower tow hitch position has been established, make a permanent mark on the tow hitch so it can easily be reset if necessary.
- k. If the mower is to be used with different tractors make marks on the tow hitch for each tractor. Clearly identify which tractor each mark applies to.



**IMPORTANT!** The driveshaft supplied with the Snake mower should **NEVER** be cut shorter. Instead, the **MOWER TOW HITCH** must be adjusted until the driveshaft length is correct.



**WARNING!** It is imperative the mower tow hitch is correctly set up. **Incorrect set-up will result in early driveshaft failure or serious damage to the machine.**



**CAUTION!** If the Snake mower is used on different tractors the previous set-up procedure must be carried out for every tractor.

**Things to watch out for:**

- a. As a rule, always keep the driveshaft as short as possible. However, if some other part of the mower contacts the tractor tyre on full turns (such as a roller) it may be advisable to lengthen the mower tow hitch. However, **this should only be done if the yellow part of the label is never exposed.**
- b. On some tractors the PTO is higher above the drawbar than on others. This causes the driveshaft to telescope more as the mower crosses ridges and depressions and may result in the driveshaft being fully compressed. This will cause severe damage to the driveshaft and mower and **must be avoided at all costs.** If the driveshaft ever moves deep into the red zone the mower tow hitch should be extended, but only **if the yellow section of the label is never exposed more than momentarily.**
- c. If the mower tow hitch cannot be set up without moving into the red zone or exposing the yellow zone it may be necessary to alter the towing position on the tractor. On some tractors the drawbar is adjustable. If so, adjust it to make it shorter. If not, it may be necessary to modify it. Contact Trimax Mowing Systems for advice.



**CAUTION! NEVER ALLOW THE CONSTANT VELOCITY JOINT OF THE PRIMARY DRIVESHAFT TO OPERATE AT ANGLES GREATER THAN 80 DEGREES! If this angle is exceeded THE JOINT WILL DESTROY ITSELF. The cause is easy to detect and WILL NOT BE COVERED BY WARRANTY.**



**Before operating the machine, experiment with some sharp turns to understand situations where the driveshaft may have to operate at extreme angles. BE PARTICULARLY AWARE WHEN REVERSING that the mower may “jack-knife” to a much greater angle than would be possible when driving forwards.**

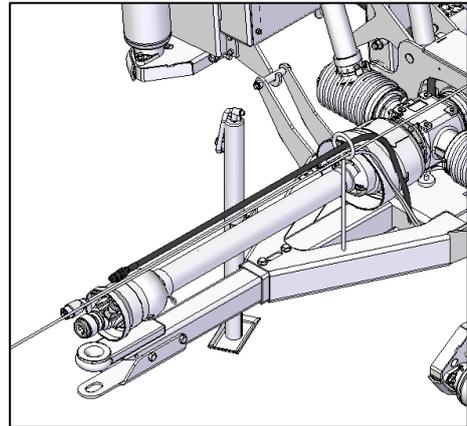
**14. Connect the hydraulic hose:**

**Trimax Snake** mowers have only one hydraulic connection. The mower decks are lifted by hydraulic rams operated from the tractor's auxiliary hydraulic system. All three lift rams are fed by a single circuit. The lift rams are of the single-acting type so there is only one hydraulic hose to connect to the tractor. The tractor auxiliary valve must be able to be set in the “float” position to enable the mower decks to follow ground contours correctly.

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A standard ½" BSP male quick-release coupling is fitted. This should suit most tractors. Consult your tractor dealer if the fittings are not compatible.

- a. With the tractor engine stopped, operate the auxiliary hydraulic valve control(s) in both directions to remove any residual hydraulic pressure.
- b. Pass the hose through the "pigtail" on the mower.
- c. Ensure the hose and tractor couplings are clean.
- d. Connect the hose to the appropriate valve port on the tractor.
- e. Check the area is clear of all bystanders, especially children. Start the tractor engine.
- f. Operate the hydraulic valve to check the mower decks move in the desired direction. If not, repeat steps a-e using another valve port. Even if the mower decks are locked in the raised transport position they will move enough to show this.



**15. Connect the tail lights (if fitted):**

- a. Pass the lighting cable through the pig-tail on the mower alongside the hydraulic hose.
- b. Connect the plug to the lighting socket on the tractor.

**16. Connect the electric remote transport lock cable (if fitted).**

- a. Pass the cable through the pig-tail on the mower.
- b. Connect the plug to the socket on the cable from the controller.

**17. Secure the hose and cables:**

- a. Route the hydraulic hose and electrical cables clear of the tractor tyres, driveshaft and other moving parts.
- b. Leave sufficient slack to allow for movement when executing tight turns or cresting a rise in the ground.
- c. Secure the hose and cables using plastic cable ties or bungy cords.

**18. Attach the transport lock release rope (if fitted):**

- a. Pass the rope through the pigtail. Ensure it will not be trapped by other cables or the hydraulic hose.
- b. Attach the free end to some suitable point on the tractor where it can be easily reached while operating the auxiliary hydraulic controls.
- c. Ensure the rope stays clear of the driveshaft or other moving parts.
- d. Leave sufficient slack to ensure the rope never becomes tight when the mower travels over undulations.
- e. On tractors with cabs ensure the rope is not trapped when the rear window is closed.

**19. Secure the handle on the transport lock release rope (if fitted):**

- a. Hold the rope taut and position the handle where it is comfortable to reach from the driver's seat.
- b. Tie a knot in the rope on the tractor side of the handle and pull the handle over it.
- c. Tie a second knot about 50mm from the handle on the mower side to prevent the handle from sliding back down the rope.

**12b. Purge The Hydraulic Lift Rams.**

The mower decks should be raised and lowered two or three times to ensure there is no air in the hydraulic cylinders.



**DANGER!** The mower decks may drop suddenly if there is air in the system. Clear the area before proceeding.



**DANGER!** The lift rams all share the same hydraulic circuit. The rear deck will always lift first but either the left or right deck may follow. A deck may partially lift then drop again before continuing. Keep well clear during lifting and lowering operations.

#### 1. Standard machines:

- a. Ensure the area is clear of all bystanders, especially children.
- b. Start the tractor engine. **Do not engage the PTO.**
- c. If the mower decks are in the **transport position**:
  - i. Ensure there is sufficient room to lower them to the ground.
  - ii. Operate the auxiliary hydraulic control to raise the decks. The decks should move slightly.
  - iii. Pull on the transport lock release rope and maintain pressure.
  - iv. Operate the hydraulic control to lower the mower decks to the ground.
- d. If the mower decks are already lowered to the **operating position**:
  - i. Operate the auxiliary hydraulic control to raise the decks.
  - ii. The mower decks will rise and lock into the transport position.
  - iii. Use the transport lock release rope as above to lower the decks again.
- e. Repeat these steps two or three times to purge any air from the system.

#### 2. Machines with Remote Unlock options:

- a. Ensure the area is clear of all bystanders, especially children.
- b. Start the tractor engine. **Do not engage the PTO.**
- c. Place the switch on the ILS Control Unit in the central "All" position
- d. If the mower decks are in the **transport position**:
  - i. Ensure there is sufficient room to lower them to the ground.
  - ii. Operate the auxiliary hydraulic control to raise the decks.
  - iii. The decks should move slightly.
  - iv. Press and hold the transport lock button on the **Remote Unlock** control unit for at least 2 seconds to allow the actuator to operate.
  - v. Operate the hydraulic control to lower the mower decks to the ground.
- e. If the mower decks are already lowered to the **operating position**:
  - i. Operate the auxiliary hydraulic control to raise the decks.
  - ii. The mower decks will rise and lock into the transport position.
  - iii. Operate the lock release as above to lower the mower decks again.
- f. Repeat these steps two or three times to purge any air from the system.

### 12c. Other Checks.

#### 1. Check tail light operation:

- a. Have an observer check that the tail, indicator and brake lights all operate correctly.

#### 2. Observe driveshaft angles:

- a. Before engaging the PTO, experiment with some sharp turns to understand situations where the driveshaft may have to operate at extreme angles.



**IMPORTANT!** Be particularly aware when reversing that the mower may jack-knife to a much greater angle than when driving forwards. This will cause permanent damage to the driveshaft CV joint even if the PTO is not engaged.

## **12d. Uncoupling The Mower From The Tractor.**

### **1. To uncouple the mower:**

- a. Manoeuvre the mower into the parking area.
- b. Either:
  - i. Lower the wings to the ground, or
  - ii. Raise the wings into the transport position. Ensure the transport locks on all three mower decks engage correctly.
- c. Stop the tractor engine, engage the parking brake and ensure all controls are in neutral.
- d. Operate the auxiliary hydraulic controls to remove any residual pressure in the system.
- e. If the mower decks will be left in the transport position, connect the transport safety cable between the outriggers.
- f. Disconnect the hydraulic hose, electrical cables and the transport lock release rope from the tractor.
- g. Lower the parking jack and use it to lift the mower tow hitch clear of the tractor drawbar.
- h. Disconnect the towbar safety chains if fitted.
- i. Disconnect the primary driveshaft from the tractor. Store the driveshaft on the PTO holder.
- j. Remove the drawbar pin.
- k. Check that nothing is connecting the mower to the tractor before moving the tractor away.

## 13. Before Operation.



**SAFETY!** Before attempting to make any adjustments or carry out maintenance on your Snake review the hazard identification list and take all necessary precautions.

### 12a Daily Checks

**1. Preparing the mower for use:**

- a. For safety and reliability carry out the following checks before using the machine. Checking procedures are in "Service and Maintenance" section.

**2. Pre-start checklist:**

- a. Check all bolts and fastenings for tightness, tighten if loose.
- b. Ensure all rotating parts turn freely.
- c. Check for bent or broken blades. Ensure fling-tip types can swing on their mounting bolts. Repair or replace as required.
- d. Ensure the driveshafts are lubricated and can telescope freely.
- e. Lubricate all components as shown in the maintenance schedule.
- f. Check gearboxes for oil leaks. Check oil levels if leaks are detected. Top up if required.
- g. Ensure transport locks operate correctly.

## 14. Using the Machine for the First Time.



**SAFETY!** Before attempting to make any adjustments or carry out maintenance on the mower, review the hazard identification table (section 3b) and take all necessary precautions.

1. **Running in.**
  - a. Although there are no operational restrictions on **Trimax Snake** mowers when used for the first time, the following mechanical items should be checked.
2. **After operating for one hour or after mowing 2 hectares (5 acres):**
  - a. Visually check the entire machine for loose fasteners, particularly blade mounting bolts.
  - b. Check the roll and pitch pivots (large nuts and bolts that secure the mower decks to the outriggers) are tight. Tighten if loose.
  - c. Check that the nuts that secure each mower deck at the front and rear are tight. Tighten if loose.
  - d. Check all guards are in place and everything is operating as it should. Correct as required.
  - e. Check the transport locks are operating correctly. Correct if necessary.
  - f. Visually check the gearboxes for oil leaks. Check oil levels and replenish.
  - g. Check that blades are not jammed in the retracted position. Free jammed blades. Replace bent blades.
3. **After operating for 8 hours:**
  - a. Repeat items 2a-h above.
  - b. Commence regular servicing as defined in the Service and Schedule section.

## 15. Operation & Adjustments.



**SAFETY!** Before attempting to operate or make any adjustments to the mower, review the hazard identification list (section 3a) and take all necessary precautions.

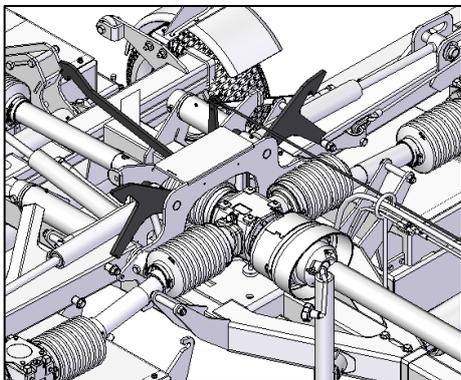
Trimax Snake mowers are designed to operate well in many kinds of grass or terrain conditions, but the operator has the responsibility of being familiar with and following all operating and safety procedures.

The lift rams are of the single acting type so hydraulic pressure can only be applied to one side of the ram piston to lift the mower decks. Operating the hydraulic controls to lower the decks simply opens the valve and allows the weight of the mower decks to force the hydraulic fluid back to the reservoir. There are two primary advantages of this system. Simplicity is one – there is only one hose to connect. The other is that the rams cannot apply downward force to the outriggers, which could damage the transport locks.

### 15a. Transport Locks.

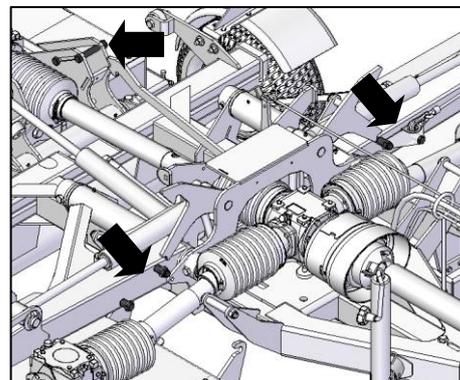
#### 1. Transport lock configuration:

- a. Each mower deck is connected to the mower's central chassis with a hinged outrigger.
- b. Hydraulic rams power the outriggers to lift the decks into the transport position.
- c. Downward movement relies on gravity. Hydraulic power is not used to power the outriggers down.
- d. When fully raised, transport locks engage to secure the outriggers and mower decks.



- e. Each transport lock consists of a steel latch which hooks over a lock pin or bolt on the chassis.
- f. As each outrigger approaches the raised position a ramp on the hook rides up the lock pin before gravity causes the hook to engage.
- g. All three hooks are connected by a linkage which allows them to be disengaged by pulling on a single rope or operating the optional Remote Unlock controller.

h. The locks incorporate stops that allow the mower to lift just clear of the ground while operating. This “kerb jump” or “lift-and-turn” function is extremely useful when operating in tight areas.



**DANGER:** Check the lock arms regularly to ensure no damage has occurred during operation. Early detection and repair is vital to maintain safe operation.

**2. Transport lock release mechanism:**

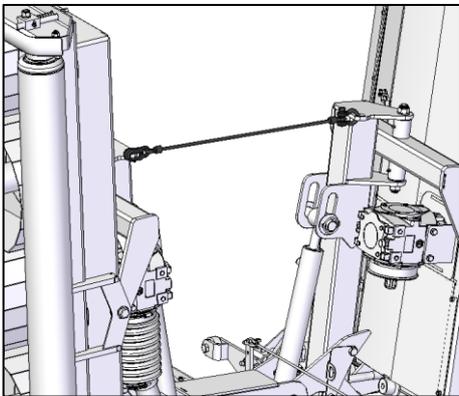
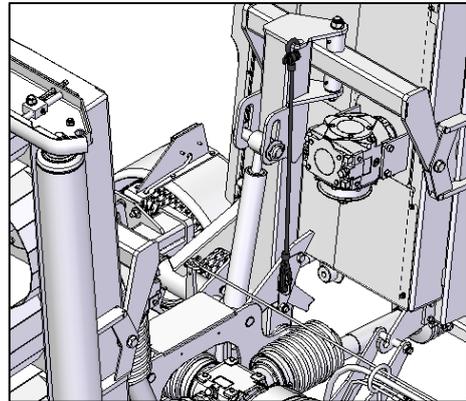
- a. The release mechanism is the same for the standard pull rope or the optional electric operation.
- b. Pivoting arms unhook from the latch pins when the release is operated.
- c. The release rope is linked to an arm to operate the rear deck lock release.
- d. The rear arm is also connected to the LH & RH deck arms. Both these operate when the rear deck lock arm is operated.



**WARNING!** Always fit the transport safety cable when transporting, parking or storing the mower with the mower decks in the raised position

**3. The transport safety cable;**

- a. A safety cable is fitted to the mower to prevent the mower decks lowering accidentally.
- b. This provides backup should the transport locks not engage properly or fail altogether.
- c. It should be used every time the mower is to be transported between jobs and whenever the mower is parked up or stored with the mower decks in the raised position.
- d. The cable has an eye in one end and a hook on the other.
- e. The eye is secured to the outer end of one outrigger.
- f. When not in use the hook is attached to a lug near the transport lock at the inboard end of the same outrigger.



- g. When the mower decks are raised for transport or when the mower is parked up, release the cable from the storage position and connect it to the lug provided in the end of the other outrigger.
- h. This connects the left and right outriggers to prevent either from lowering accidentally.



**IMPORTANT!** Always return the cable to the storage position when lowering the mower decks. If left free it will cause serious damage to other parts of the machine.

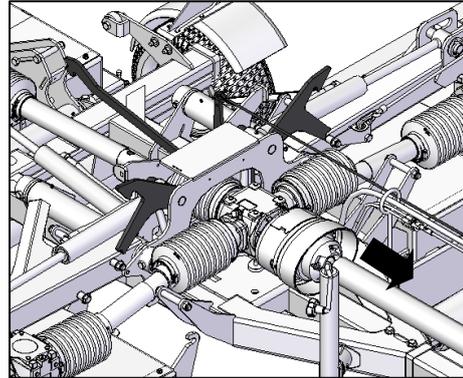
**15b. Raise & Lower The Mower Decks - Standard Pull Rope.**



**IMPORTANT!** Drive to the mower **MUST** be disengaged before the mower decks are lifted. Disengage the tractor's PTO and wait for all rotating parts to stop before operating the hydraulic lift control. Failure to do so will result in severe damage to the mower deck driveshafts and other drive components.

**1. To lift the mower decks:**

- a. Bring the tractor to a stop on level ground.
- b. Disengage the tractor's PTO drive and wait for all rotating parts to stop.
- c. Ensure the area is clear of all bystanders, especially children.
- d. Pull the transport lock release rope.
- e. Operate the tractor's auxiliary hydraulic control to lift the mower decks.
- f. When the decks are all partially raised, release the transport lock release rope (or the Remote Unlock button).
- g. When all the decks are raised, and the locks have engaged, operate the tractor hydraulics to lower the decks. They will settle slightly against the transport locks.



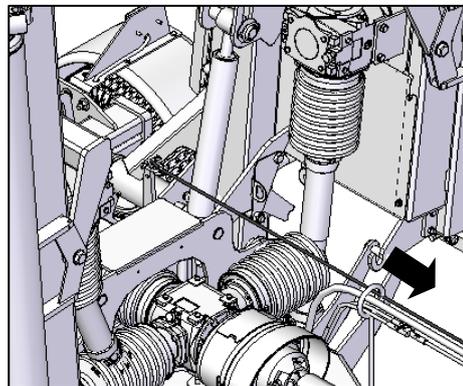
**CAUTION!** The rear deck will usually lift first but either the right or left deck could follow. A deck that has started to lift may partially drop again before resuming its lift cycle. Keep well clear until all decks have fully raised, and the transport locks have engaged.



**WARNING!** Make sure there is no tension on the transport lock release rope while the mower decks are being raised. If the rope is tight it will prevent the transport locks from engaging properly.

**2. To lower the mower decks:**

- a. Ensure the machine is in a clear, level area large enough to accommodate the mower decks when lowered.
- b. Bring the tractor to a stop, apply the parking brake and ensure all controls are in neutral.
- c. If the transport safety cable is fitted between the two outriggers, release the hook and connect it in the storage position.
- d. Pull on the transport lock release rope while operating the auxiliary hydraulic lever to raise the mower decks. As the load comes off the locks they will release.
- e. Continue to pull on the release rope while operating the hydraulic lever to lower the mower decks. Do not release the tension on the rope until the rear deck has begun to descend.
- f. To avoid damage always lower the mower decks to the ground gently.
- g. Place the auxiliary hydraulic control in the "float" position if possible, particularly if the mower will be operating on severely undulating ground. See your tractor operator's manual for more information.



**IMPORTANT!** Never attempt to engage drive to the mower while the rear deck is raised. Doing so will severely damage the driveshaft and other drive components. Always stop the PTO before raising the rear mower deck.

## 15c. Raise & Lower The Mower Decks - Optional Remote Unlock.



**WARNING!** Drive to the mower **MUST** be disconnected before the mower decks are lifted. Disengage the tractor's PTO and wait for all rotating parts to stop before operating the hydraulic lift control. Failure to do so will result in severe damage to the mower deck driveshafts and other drive components.

### 1. To lift the mower decks:

- a. Bring the tractor to a stop on level ground.
- b. Disengage the tractor's PTO drive and wait for all rotating parts to stop.
- c. Ensure the area is clear of all bystanders, especially children.
- d. Press and hold the Unlock Button on the controller.
- e. Operate the tractor's auxiliary hydraulic control to lift the mower decks.
- f. When the decks are all partially raised, release the Remote Unlock button.
- g. When all the decks are raised, and the locks have engaged, operate the tractor hydraulics to lower the decks. They will settle slightly against the transport locks.



**CAUTION!** The rear deck will usually lift first but either the right or left deck could follow. A deck that has started to lift may partially drop again before resuming its lift cycle. Keep well clear until all decks have fully raised, and the transport locks have engaged.



**WARNING!** Make sure there is no tension on the transport lock release rope while the mower decks are being raised. If the rope is tight it will prevent the transport locks from engaging properly.

### 2. To lower the mower decks.

- a. Ensure the machine is in a clear, level area large enough to accommodate the mower decks when lowered.
- b. Stop the tractor, apply the parking brake and ensure all controls are in neutral.
- c. If the transport safety cable is fitted between the two outriggers, release the hook and connect it in the storage position.
- d. Operate and hold the auxiliary hydraulic control to raise the mower decks.
- e. Press and hold the UNLOCK button on the Remote Unlock controller for 1-2 seconds. All locks should disengage.
- f. Operate the auxiliary hydraulic lever to lower the mower decks. Keep the unlock trigger button depressed until the rear deck has begun to descend.
- g. To avoid damage always lower the mower decks to the ground gently.
- h. Place the auxiliary hydraulic control in the "float" position.

## 15d. Raise & Lower The Mower Decks – Kerb Jump Function.

### 1. To operate kerb jump

- a. Do not pull the transport lock release cable.
- b. Operate the tractor's auxiliary hydraulic control to raise the mower decks. Each deck will lift until stopped by the lock mechanism.
- c. To return to normal mowing, operate the hydraulic control to lower the decks and place the control in the float position.



**DANGER!** Kerb jump is intended for momentary use only. The blades continue to turn when the mower decks are clear of the ground. Ensure all bystanders, especially children, are well clear before using this function.

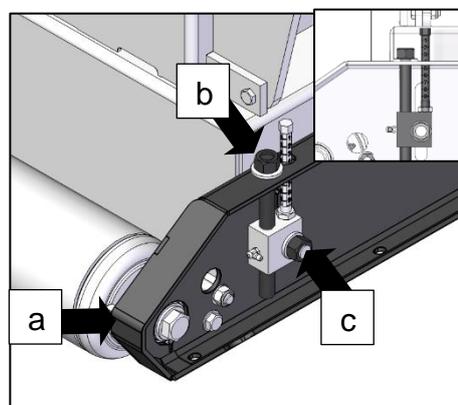


**SAFETY!** Do not use kerb jump while moving between jobs. Disengage drive to the mower decks and raise them into the transport position if moving more than a few metres (yards).

### 15e. Cutting Height.

#### 1. General:

- a. The cutting height of the blades is set by adjusting the position of the rollers.
- b. The end of each roller is mounted to a sliding plate known as a "side channel" (a).
- c. The sliding plates are raised or lowered by turning screw adjusters (b).
- d. Clamp bolts secure each sliding plate to the mower body (c).
- e. Cutting height indicators show the cut height in centimetres or inches depending upon the market.
- f. There are four adjusters on each mower deck.



#### 2. Tools for height adjustment:

- a. **Clamp bolt nuts** - 1/2" drive power bar and 24mm (or 15/16") socket.
- b. **Adjuster screws** - the same tools with a long extension fitted between the power bar and socket.

#### 3. Preparation:

- a. Park the tractor in a clear level area.
- b. Lower the mower decks.
- c. Apply the parking brake. Stop the engine and wait for all moving parts to stop before dismounting.

CUTTING HEIGHT ADJUSTMENT				
To Adjust By:	No. of Turns		To Adjust By:	No. of Turns
5mm	2.5 turns		1/4"	3 turns
10mm	5 turns		1/2"	6 1/2 turns
20mm	10 turns		1"	12 1/2 turns

#### 4. Count the number of turns:

- a. The cutting height moves 4mm for each full turn of the adjuster screws.
- b. It is much quicker and more accurate to work out the number of turns required to achieve the desired cutting height from the table below.
- c. Turn all the adjusters by the same number of turns in the same direction. Use the height adjustment indicators as a check only.

#### 5. To lower the cutting height:

- a. Do not loosen the clamp bolts (a).
- b. Turn each adjuster screw **anti-clockwise** the same number of turns in the same direction.
- c. Don't use ratchets! It's difficult to count turns if the ratchet clicks over during the operation.
- d. Only after all the height adjuster screws have been adjusted, loosen the clamp bolts (a). The mower bodies should drop suddenly to the new level.
- e. Check that all the side channels are hard up under the heads of the height adjuster screws and the flat washers cannot be turned (c).
- f. Check the height indicators to confirm the cutting height is correct.

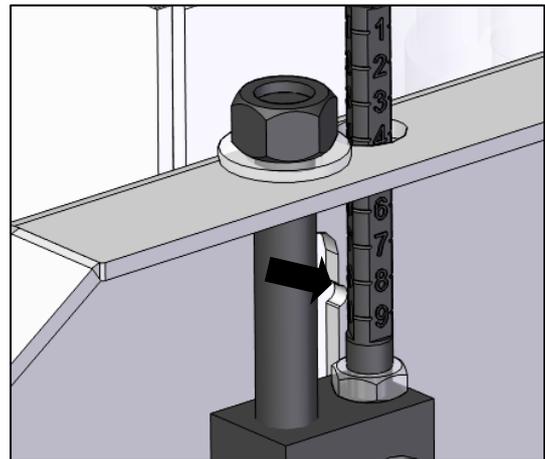
- g. Securely tighten the clamp bolts (a).

**6. To raise the cutting height:**

- a. Loosen all the clamp bolts (a).
- b. Turn all the adjuster screws (c) **clockwise** by the required number of turns.
- c. Ensure the side channels are hard up under the adjuster screw heads (c).
- d. Securely tighten all the clamp bolts.

**7. If you get lost:**

- a. Datum marks are drilled into the side channels.
- b. To re-set to the datum hole, start by parking the machine on a flat surface.
- c. Lower the mower decks.
- d. Set all adjusters until the datum holes align.
- e. The mower will now be set to cut at 40mm (1 37/64")
- f. The datum hole can be used to re-set the height indicator rods if they loosen or need replacement.



**8. Comparing cutting height with other mowers.**

- a. Roller mowers may cut significantly lower than other types of mowers at the same settings.
- b. Side-by-side comparisons with cylinder mowers have shown both machines producing the same results with the roller mower set at 10-15mm (3/8" - 9/16") higher than the cylinder.
- c. Any mower cutting lower than another will:
  - i deal with far more plant matter
  - ii use more power and fuel
  - iii increase the likelihood of scalping and clumping.
- d. The only way to decide on the correct cutting height is to measure the results.

**15f. Moving Between Jobs.**



**SAFETY!** Before travelling any distance with the mower attached to the tractor review the hazard identification table (section 3b), take all necessary precautions.

**1. Prepare for travelling:**

- a. Disengage the PTO and wait for all moving parts to stop.
- b. Raise the wings to the transport position. Ensure the locks engage correctly.
- c. Connect the transport safety cable between the outriggers.
- d. If the optional electric brakes are fitted, **switch them on**.
- e. Fully raise the mower on the three-point linkage.
- f. Turn on headlights, warning lights, hazard flashers as required to comply with all local regulations.

**15g. Starting The Mower.**



**SAFETY!** Before starting to mow, review the hazard identification table (section 3a), take all necessary precautions.

### 1. Start a mowing job:

- a. Check the site. Remove stones or objects that could be thrown by the mower blades.
- b. Ensure area is clear of bystanders, especially children.
- c. Align the tractor with the work area.
- d. Check there is clear space to lower the mower decks.
- e. Ensure all controls are in neutral and apply the parking brake.
- f. Disconnect and stow the transport safety cable.



**WARNING!** Always fit the transport safety cable when transporting, parking or storing the mower with the mower decks in the raised position.

- g. If the optional electric brakes are fitted, **switch them off**.
- h. Lower the mower decks to the ground. Set the auxiliary hydraulic control(s) to allow float. i. Run the engine at an idle.
- j. Engage the PTO to start the mower.
- k. Adjust the throttle until the PTO runs at 540rpm.
- l. Engage gear to proceed down the working area.

### 2. Finish a mowing job:

- a. Decrease the engine speed to a low idle.
- b. Disengage the PTO clutch.
- c. Raise the mower decks into the transport position.
- d. If moving to another job, follow the instructions in section 13e above.
- e. If parking the mower and tractor, stop the tractor engine and ensure all controls are in neutral, engage the parking brake, remove the ignition key and wait for all moving parts to stop before dismounting.
- f. Connect the transport safety cable to ensure the decks cannot lower unexpectedly.

## 15h. Operating Hints.

### 1. PTO speed:

- a. **NEVER EXCEED 540rpm.**
- b. Keep PTO revs as close to 540rpm as possible for a clean cutting action.
- c. Keep engine speed constant. Vary travel speed by changing gears.
- d. **540E settings:**
  - Take care not to over-rev the PTO when using 540E settings.
  - **Do not use 540E in heavy conditions.** Shifting large volumes of grass requires more power. Set the PTO to 540 so the engine runs at higher revs for more torque.
- e. In spring conditions when grass is juicy, mowing performance may be improved by **reducing the PTO speed** to 450rpm and using a higher gear to maintain groundspeed.



**DANGER!** Running PTO at excessive speeds causes the blades to run too fast. Parts may break, fly off and cause injury, death and property damage. Never exceed 540rpm.

### 2. Missing blades:

- a. **Never run the mower with blades missing.** Imbalance will cause rapid structural failure of the mower deck and damage the gearbox and driveshaft.
- b. If vibration is detected, stop, inspect the machine and replace missing blades before resuming.

### 3. Conditions:

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- a. **Snake** mowers work well in wet conditions, but mow when conditions are dry if possible.
- b. Terrain, grass length, moisture content, soil moisture and tractor power all affect the final job.
- c. Unsightly clumping will occur if too much grass is cut in one pass. Mow more frequently. Schedule more cuts in spring time.

**4. Ground speed:**

- a. Travel speed can vary from very slow to more than 15kph (9mph) if vegetation and terrain permit.
- b. The operator is responsible for monitoring the job and setting ground speed. Ground speed may be increased if a good cut is being done or reduced if results are poor.
- c. Always reduce ground speed when cutting over rough or steep terrain, around obstructions or in close quarters.

**5. Hidden Obstacles:**

- a. Always inspect the area for hidden obstacles before mowing.
- b. If an obstacle is struck, stop and inspect the mower for damage. Repair as necessary before continuing.

**6. Cutting Height:**

- a. Never cut vegetation shorter than recommended for local weather conditions - vegetation cut short is less able to withstand hot and dry conditions.
- b. Cutting more often at a greater cutting height is better than cutting too short.

**7. Blade Sharpness:**

- a. Replace blades if the mower does not cut cleanly.

**8. Tight turns:**

- a. Never turn so sharply that the driveshaft operates at angles above 80°.
- b. Take particular care when reversing not to "jack-knife" the mower. Driveshaft damage will occur if angles exceed 80°.

**9. Safety Awareness:**

- a. **Snake** mowers have blades which rotate at high speed. Stones or objects hit by blades can be expelled from under the mower at high speed.
- b. Operators must be aware that expelled objects may cause injury or death to people and animals and damage to property.



**DANGER!** If people, especially children, approach within 30m (100 feet) of the machine, **STOP IMMEDIATELY** and disengage the PTO. Do not restart until the working area is cleared.



**SAFETY!** These mowers are designed to operate well in a wide variety of grass or terrain conditions. However, the operator has the responsibility of being familiar with and following all operating and safety procedures.

## 16. Service & Maintenance.



**SAFETY!** Before attempting to make any adjustments or carry out maintenance, review the hazard identification table (section 3b), take all necessary precautions

1. **General:**
  - a. Maintenance requirements for your **Trimax Snake** have been kept to a minimum without sacrificing long life and reliability.
  - b. Operations described in this section should be carried out **as necessary** or at the intervals stated in the **Service Schedule** section.
  
2. **Genuine spare parts.**
  - a. Many genuine **Trimax** parts are different from parts that look the same and have similar manufacturers' numbers.
  - b. Vee belts are a good example. They look simple but there is a vast range of types. Failures of belts from after-market suppliers are common. Fitting the wrong type can easily reduce the capacity of the drive by 50%. There are different ways of measuring vee belt lengths and two belts with the same size on the label can be a whole size apart, even with belts of the same brand but from different factories. This can result in them either running out of tensioning adjustment or being too small to fit.
  - c. Bearings have been chosen specifically for the job. Fitting the correct roller, spindle and belt idler bearings is essential to maintain reliability.
  - d. Purchasing genuine **Trimax** spare parts eliminates issues and ensures your **Trimax** mower will perform as intended.
  
3. **Workshop facilities & skill levels.**
  - a. Some people experience difficulties when undertaking repairs to their **Trimax** mowers. Investigations into complaints about repeated failures often reveal the issues were not correctly diagnosed or repairs were not carried out properly.
  - b. **Trimax** mowers are designed with servicing in mind. Every effort is made to ensure parts can be removed and replaced as easily and quickly as possible. Despite this, simple jobs can escalate into much more difficult operations if other parts have been damaged.
  - c. Some jobs may need a press with a capacity of several tonnes (tons) or specialised tools commonly found in well-equipped service facilities.
  - d. While service work described in the operator's manual is detailed enough to cover the basics, **Trimax** cannot specify exactly what will be required for any repair job.
  - e. All but the simplest jobs require someone with the skills to do the job and the correct tools. Check the table below and if you have any doubts about your ability or the facilities available, leave the job to an experienced mechanic.

RESOURCE REQUIREMENTS			
	SKILLS	TOOLS	PARTS
MAINTAIN	Low	Basic	None
REPLACE	Medium	Comprehensive	Replacement parts only
REPAIR	High	Specialised	As required

## 16a. Transmission Covers.

### 1. General:

- a. Transmission covers protect people from moving parts.
- b. They keep grass clippings and debris away from the transmission.
- c. The covers must be opened to check drive belt tensions or removed altogether to replace the drive belts.
- d. Covers may not need to be removed for cleaning grass clippings from the transmission area.



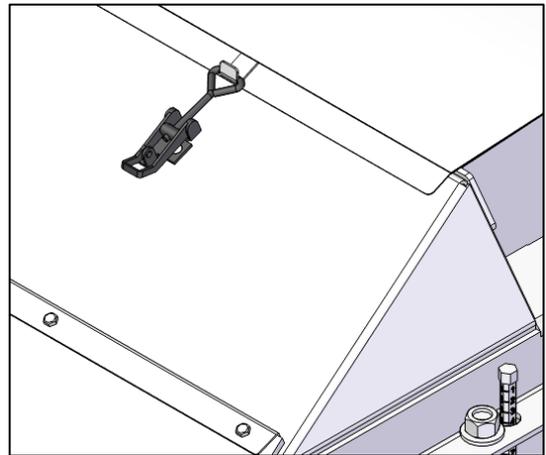
**DANGER!** Never operate the mower with covers open or removed.



**IMPORTANT!** Covers are for preventing access only. They are not strong enough to support the weight of a person. Do not stand or walk on the covers.

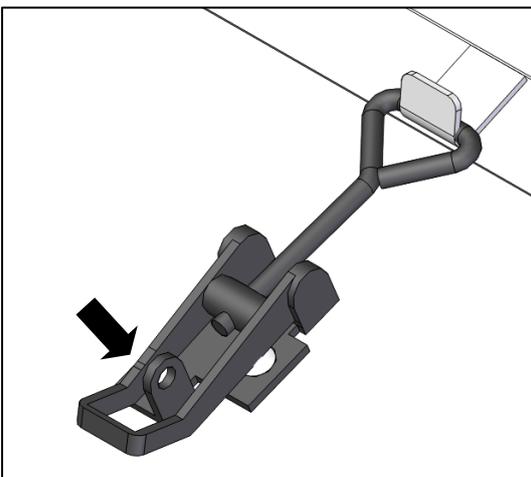
#### 1. Lift the covers for inspection and cleaning:

- a. Lower the mower decks to the ground, engage the parking brake, stop the tractor engine, ensure all controls are in neutral, remove the ignition key and wait for all moving parts to stop.
- b. Release the toggle latches that secure the cover to the rear of the mower.
- c. Lift the hook clear of the strike on the cover.
- d. Raise the rear of the cover.



#### 2. Cover removal and replacement:

- a. Release the toggle latch.
- b. Remove the nuts that secure the front of the covers to the mower body.
- c. Retrieve the washers.
- d. Lift the cover clear of the machine.
- e. To replace, position the holes over the studs.
- f. Refit the washers and nuts.



#### 3. Cover latch locking

- a. Toggle latches can be locked by fitting a bolt and self-locking nut to the vertical tag as shown.
- b. Alternatively, a small padlock can be fitted.

#### 4. Adjust the tension of the toggle latches:

- a. Undo the toggle latch.
- b. Turn the loop clockwise to tighten the latch, anti-clockwise to loosen it.
- c. Attach the loop and operate the latch to check the results. Adjust again if necessary.

## 16b. Drive Belts.

Snake decks are fitted with Auto Belt Tension Systems (ABT). This removes the need for the operator to routinely check belt tensions and adjust.

It is still recommended to routinely check that the ABT system is functioning correctly to ensure belt tension is maintained.

### 1. General:

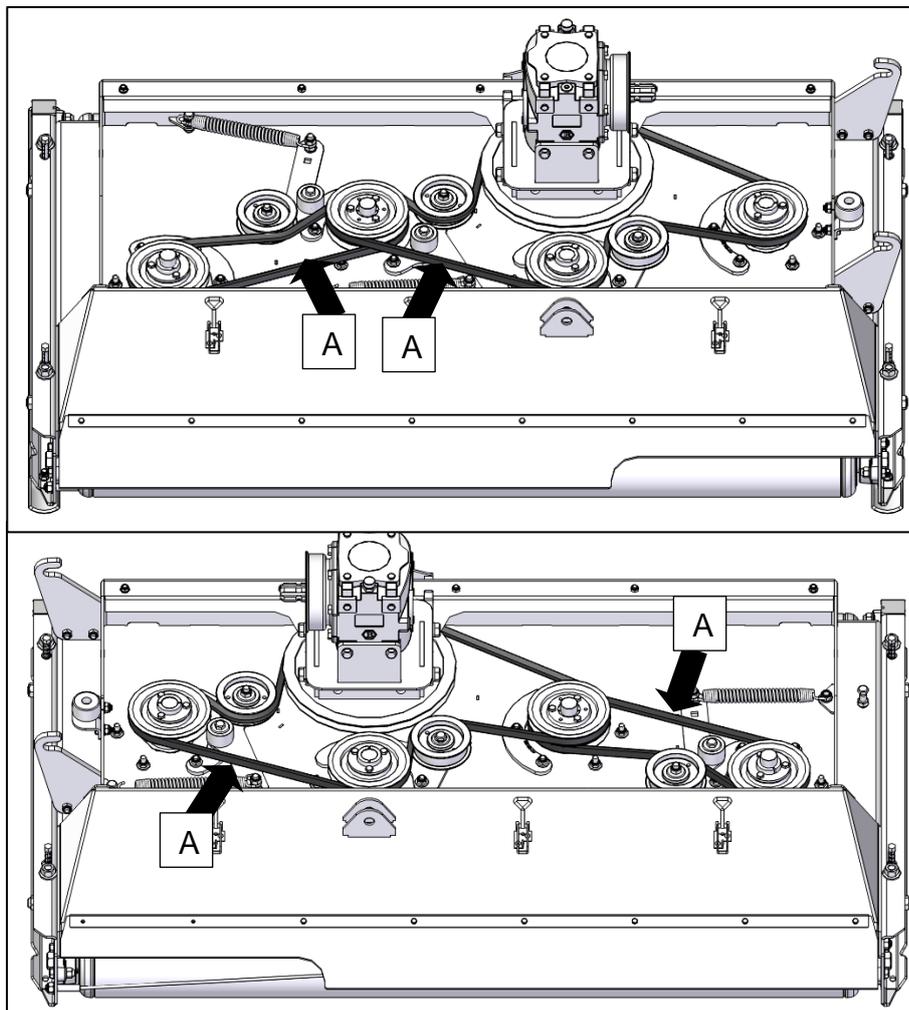
- a. Operators familiar with vee belt drives can judge belt tension by pushing the belt with their finger and feeling the pressure.
- b. Belt tension measuring tools can be purchased from reputable vee-belt suppliers.



**IMPORTANT!** There are several types of vee belts which all look similar. Fitting the wrong type can radically affect performance. **ALWAYS USE GENUINE TRIMAX SPARE PARTS.**

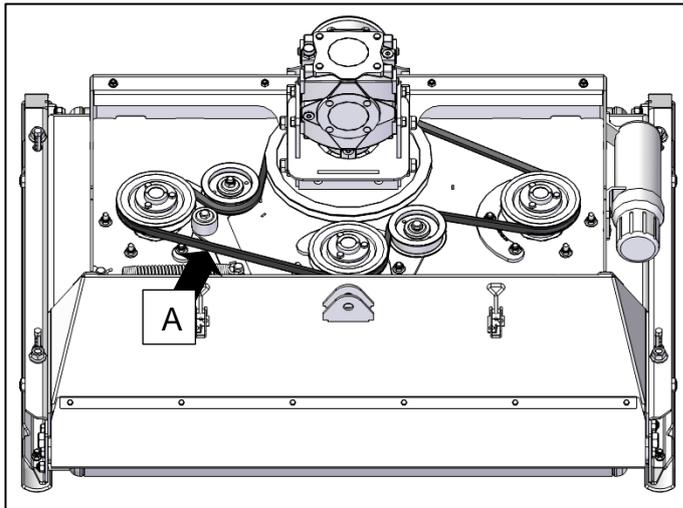
### 2. Check drive belt tension:

- a. Lower the mower decks.
- b. Stop the tractor engine, ensure all controls are in neutral, remove the ignition key and wait for all moving parts to stop.
- c. Lift the transmission covers (see section 16a).
- d. Check the belt tension by pushing belt as shown by arrow. Belts should deflect between 10-15mm (3/8 - 5/8") with moderate finger force, shown by arrow (a).



Left-hand 160 Deck

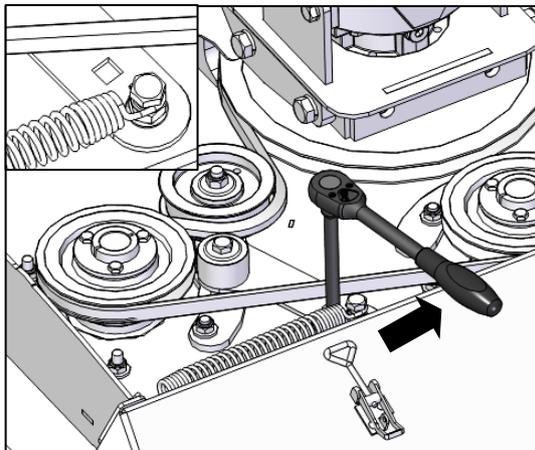
Right-hand 160 Deck



Left-hand, Right-hand and Rear  
120 Deck

### 3. Replace the drive belts:

- Belts can easily be replaced by taking the tension off the ABT system.
- Use a ratchet and ½" socket extension positioned in the square hole (see insert) of the ABT and apply force in the direction of the arrow.
- 160 decks may require the operator to remove both belts to gain access for replacement.
- Replace the belt with a **genuine Trimax part**. Refit other belts if removed. Refer to the decal on the mower deck for correct belt placement.



### 16c. Blades.



**DANGER!** Blades rotate at high speed. ANY PARTS THAT BREAK LOOSE MAY TRAVEL A CONSIDERABLE DISTANCE AND CAUSE SEVERE INJURY OR DEATH.



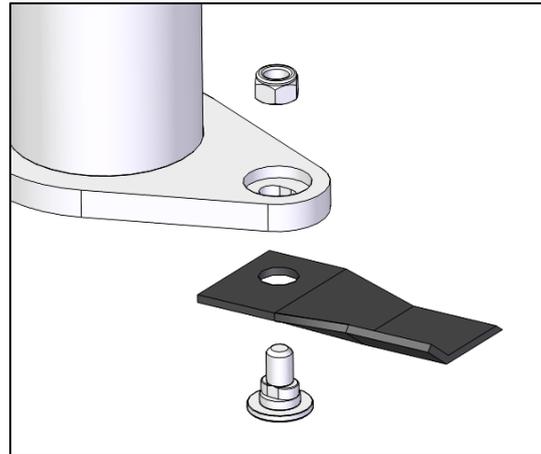
**DANGER!** NEVER RUN THE MOWER WITH BLADES MISSING as the resulting imbalance may create a vibration sufficient to loosen other blades. Vibration may also lead to early structural failure of the mower and damage to the driveshaft and the tractor's transmission.



**DANGER!** Pay particular attention to the security and condition of blades, blade carriers and blade mounting bolts and nuts.

### 1. LazerBladez™:

- a. **Trimax** mowers are fitted with **Trimax's** exclusive **LazerBladez™**.
- b. The blade part of the **LazerBladez™** system is known as a "fling-tip", which is a small blade mounted to a blade carrier by a special bolt.
- c. As the blade carrier spins, the blade pivots about the mounting bolt and is held in position by centrifugal force.
- d. The advantages of fling-tip blades are:
  - i. They are thinner than one-piece solid blades and keep cutting even when blunt.
  - ii. They are relatively inexpensive and quick to replace.
  - iii. They pivot backwards if they hit an "immovable" object, preventing damage to the blade spindles and other parts.



**LazerBladez™** fling-tips are unique.

- e. The offset mounting hole shifts the centre-of-gravity of the blade. The cutting-edge tilts forwards while cutting, reducing "hang back" and uncut strips in heavy conditions.
- f. They are wider than many blades, resulting in more mass for higher impact in heavy going.
- g. The upturn on the trailing edge is optimised to give better grass lift and discharge characteristics.
- h. LazerBladez™ are made from a special steel alloy which is harder for longer life while retaining the toughness essential for commercial applications.
- i. The **LazerBladez™** bolt is specially designed to suit the blades.

### 2. Genuine parts:

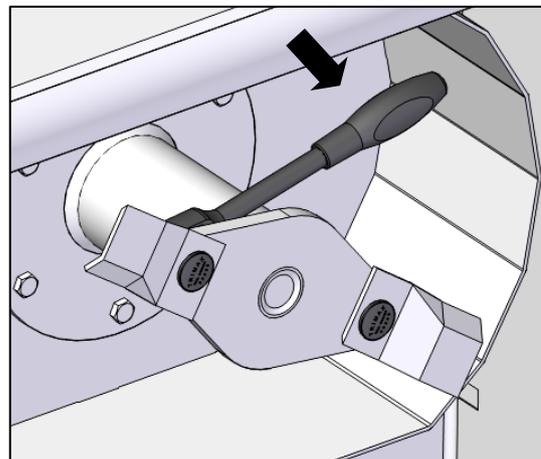
- a. **Trimax LazerBladez™** are specifically developed for **Trimax** mowers. **Accept nothing else.**
- b. All parts should be stamped **Trimax**.
- c. Non-genuine or "pirate" blades may be available. **Trimax** owners who have tried them say they don't last as long and that inaccurate dimensions have led to other failures.
- d. There have been instances where blades have broken free from **Trimax** mowers fitted with pirate blade bolts made from inferior materials.



**DANGER! Trimax Mowing Systems will not be held responsible for warranty or the consequences arising from failure of non-genuine spare parts!**

### 3. Change LazerBladez™ fling-tips:

- a. Clear the area of bystanders, especially children.
- b. Lift the mower decks to the transport position. Ensure the transport locks engage.
- c. Stop the tractor engine, ensure all controls are in neutral, remove the ignition key and wait for all moving parts to stop.
- d. Connect the transport safety cable between the outriggers.
- e. Use a 19mm (3/4") socket or spanner to undo the self-locking nut that secures the blade bolt. A ladder may be required to reach the top blade bolts.

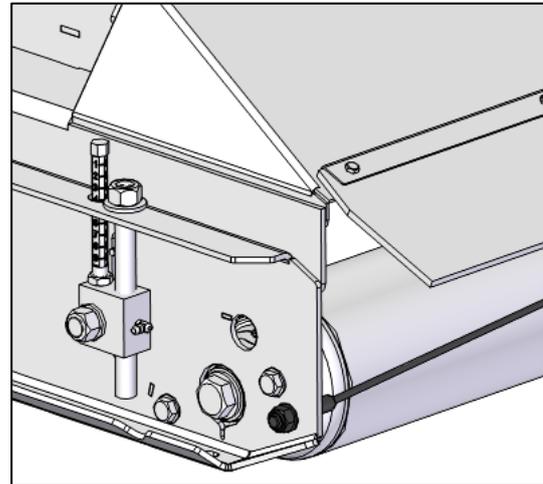


- f. Discard used blade bolts and nuts. **Fit new bolts and nyloc nuts when fitting new blades.**
- g. Fit the new blade and bolt to the blade beam. Ensure the bolt is orientated correctly.
- h. Fit the nut and tighten to a torque of **80Nm (60 lb-ft)**.
- i. Ensure the blade is free to turn about the bolt.

## 16d. Roller Scrapers.

### 1. General:

- a. Mowers can be fitted with optional roller scrapers.
- b. Each scraper consists of a length of wire cable wrapped in a quarter turn around the roller and secured to the side channels at either end.
- c. Roller scrapers may only be required at certain times of the year or may not be necessary at all. If roller scrapers are supplied with the machine they may not be fitted.



**IMPORTANT:** It is the responsibility of the operator to fit or remove roller scrapers depending upon the ground conditions prevailing at any given time.



**IMPORTANT!** Do not tighten the roller scraper cables more than is necessary to clean the roller. Over-tightening will place unnecessary loads onto the roller bearings, may stop the roller turning, and may make it difficult to adjust the cut

### 2. Fit roller scrapers

- a. Remove the self-locking nut from one end.
- b. Pass the end through one of the holes adjacent to the roller bearing at one end of the roller and pull the wire through.
- c. Pass the end through the other hole in the opposite side channel so the wire wraps about 90° around the roller. Fit the self-locking nut.
- d. Use an adjustable wrench or pliers to hold the shank of the threaded section to prevent it turning.
- e. Use a 19mm or 3/4" spanner to turn the self-locking nut until the threaded end projects about two threads beyond the nut.
- f. Tighten the other end until the wire sits against the roller but does not prevent it from turning.

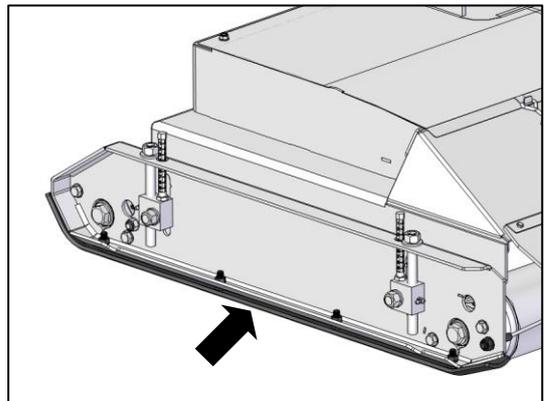
### 3. Re-tensioning:

- a. Roller scraper wires may stretch slightly with use.
- b. Adjust the tension if necessary.

## 16e. Wear Skids

### 1. General:

- a. **Trimax Mowing Systems** has produced ever more effective grass mowing machines.
- b. They began being used on high quality turf at cut heights so low they were previously considered impossible for rotary mowers.
- c. Increased expectations highlighted areas for improvement, one of which was cutting extremely close on turf where the ground was not perfectly smooth. The roughness causes the mower to jiggle up and down, leaving a scalloping effect from each of the mower blades.
- d. Another highlighted area was wear on the side channels when cutting against concrete and gravel pathways.
- e. Wear skids were developed to eliminate these effects. These optional skids can be fitted beneath the side channels on each mower deck to ease the mower over any irregularities between the front and rear rollers and protect the mower from hard wearing situations.
- f. They help to prevent scalping when cutting very low.
- g. The skids are made from wear resistant steel and follow the shape of the side channel.
- h. Each skid has four mounting studs which pass through matching holes in the bottom of each side channel.
- i. Heavy flat washers space the skids to the desired depth.
- j. They fix to the side channels with spring washers and nuts.
- k. When adjusted correctly they should leave no visible marks after the mower has passed.
- l. Left and right-hand skids are identical.

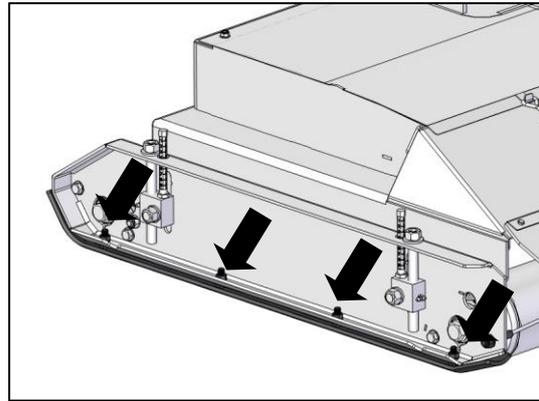


### 2. Fit wear skids:

- a. Raise the mower decks to the transport position and ensure the transport locks have engaged properly.
- b. Place all controls in neutral, apply the parking brake, stop the tractor engine and remove the ignition key.
- c. Connect the transport safety cable between the outriggers.
- d. Work on one skid at a time. Remove the nuts and spring washers.
- e. Fit the skid to the side channel **without any heavy flat spacer washers** on each stud between the skid and the bottom of the side channel to start with.
- f. Fit spring washers and nuts to the studs inside the side channel. Tighten them securely. Access to one of the mounting bolts will require an open-end spanner to secure the nut.
- g. Repeat the above steps for the other side channels.
- h. To access the outer skids on the side decks, lower the mower decks onto blocks of wood placed under the rollers near the outer side channels.

**3. Set the skid height:**

- a. Use the mower to mow a section of turf.
- b. Examine the finished job. If the finish is unacceptable, the skid height will need to be adjusted to suit.
- c. Work on one mower deck at a time. Add one washer to each stud on the skid on both sides of the deck.
- d. Mow another section of problematic terrain and compare the finished job of the deck that was changed with the job done by the other mower decks.
- e. Repeat the above steps to reach the best compromise between bounce suppression and turf damage.
- f. Adjust the other mower deck skids to the same level.
- g. When finished securely tighten all the mounting nuts.



**16f. Greasing.**



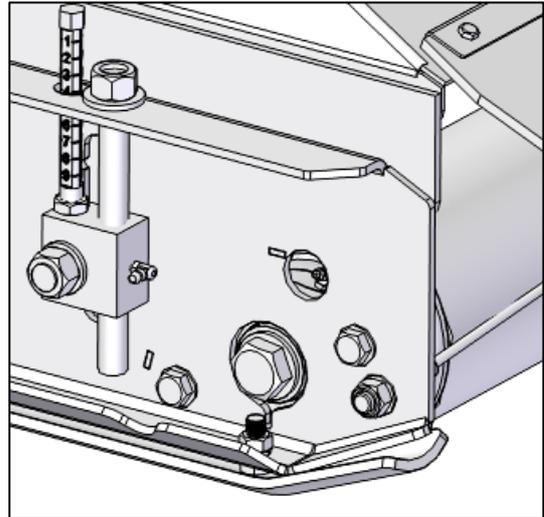
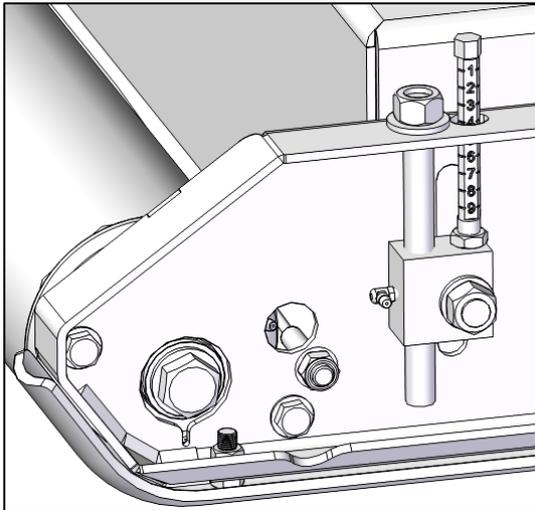
**WARNING! DO NOT OVERGREASE THE ROLLER BEARINGS! Excessive grease will dislodge the bearing seals and allow dirt and water to enter the bearing. This will cause early bearing failure.**

**1. Grease types:**

- a. Use only lithium-based grease manufactured by a reputable company. Most "multi-purpose" greases supplied by well-known companies are lithium or lithium complex based and should be compatible with those used in **Trimax** products.
- b. Greases formulated from bases other than lithium may react or completely break down when mixed, even in very small quantities. In particular, do not use greases containing graphite.
- c. If there are any doubts concerning the composition of any grease being considered for use in this **Trimax** product consult your lubricant supplier or purchase a suitable product from a multi-national company.
- d. Cleanliness is essential when working with grease and oil. Clean the grease gun nozzle and each grease fitting before applying grease.
- e. The quantity of grease is described by the number of "pumps" or "shots". One pump is defined as the quantity of grease delivered by one pump of a lever-action grease gun, while one shot is that delivered in one cycle of an air-operated power grease system. One shot is typically equivalent to four pumps.

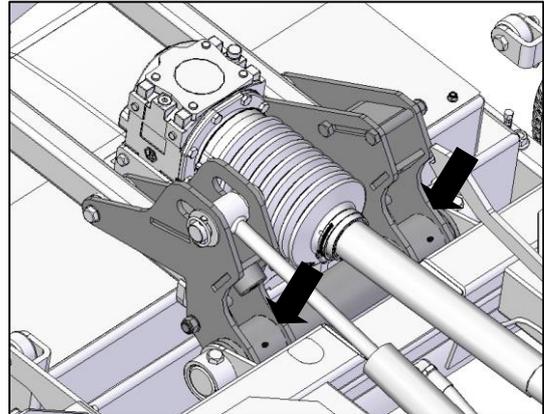
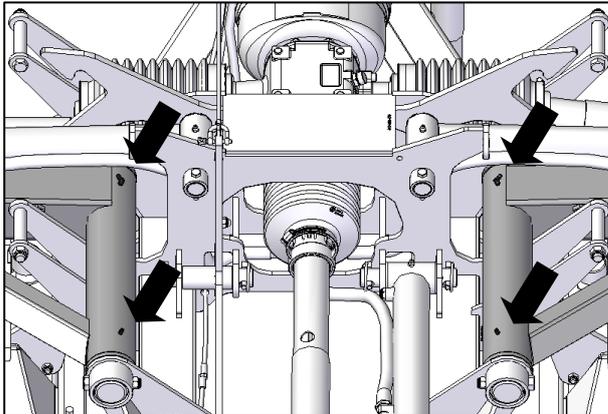
**2. Grease roller bearings:**

- a. Lubricate every 8 hours or daily.
- b. All but two grease points are located just inside an access hole in the side channels as shown.
- c. The roller bearing on the right-hand side of front roller of the rear deck is accessed from above when the rear deck is in its lowered position
- d. The roller bearing on the left-hand side of the front roller on the rear deck is accessed from the rear of the machine with the rear deck in the raised position.
- e. Apply no more than 2 pumps of multi-purpose grease to each point.



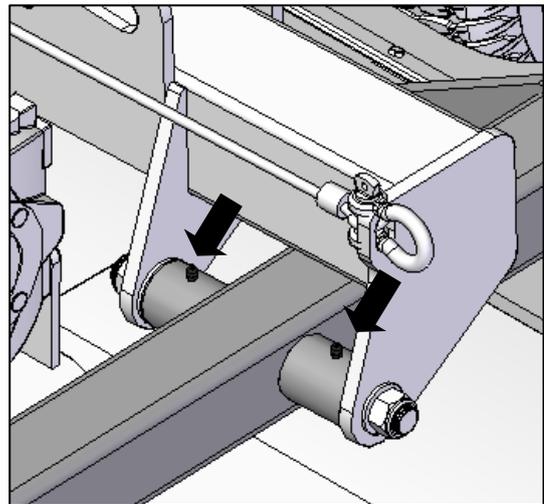
**3. Grease outrigger hinge bushes:**

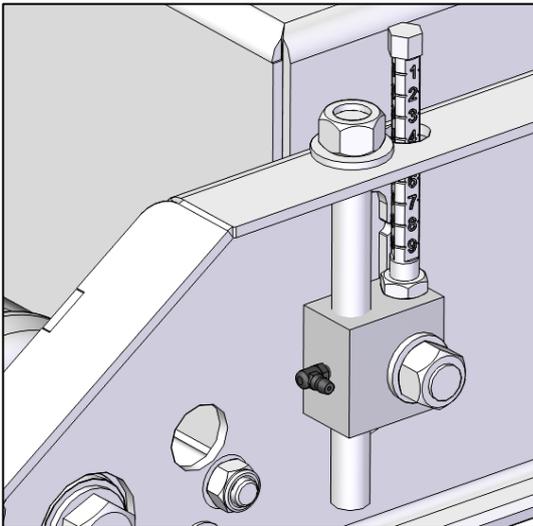
- a. Lubricate **every 150 hours** or **monthly**.
- b. Each outrigger (left, rear and right) pivots about a large tubular hinge pin.
- c. Grease points are located at either end of the tube (6 in total).
- d. Apply **1 shot** or **4 pumps** of multi-purpose grease to each point.



**4. Grease side deck pitch pivots:**

- a. Lubricate **every 40 hours** or **weekly**.
- b. The left and right mower decks each attach to the outrigger via a hinge that allows it to pitch fore-and-aft.
- c. Grease points are located beneath the outrigger arm.
- d. Apply **1 shot** or **4 pumps** of multi-purpose grease to each point (or until grease exits).





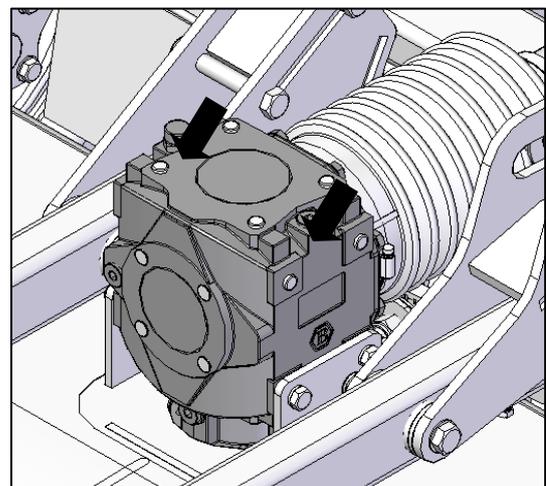
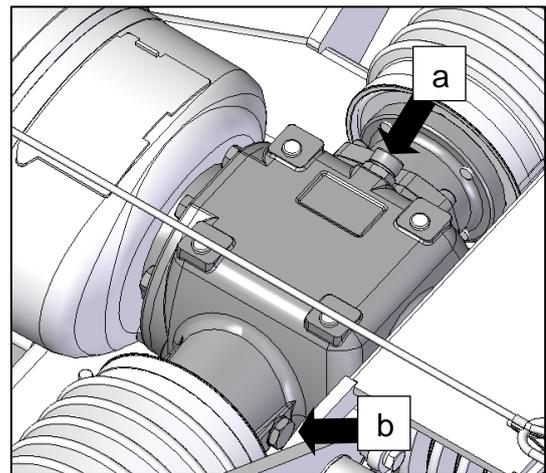
**5. Grease height adjusters:**

- a. Grease only **as required**. If the cutting height is never changed the adjusters may never need greasing.
- b. Greaser nipples are fitted to each height adjustment block.
- c. Apply grease until it begins to squeeze out around the height adjustment screw.

**16g. Gearbox Oil.**

**1. Check the gearbox oil level, all gearboxes:**

- a. Check the gearboxes for oil leaks regularly.
- b. Check oil levels **every 150 hours or monthly**.
- c. Park the tractor on level ground.
- d. Lower the mower decks to the ground, stop the tractor engine, engage the parking brake, ensure all controls are in neutral, remove the ignition key and wait for all moving parts to stop.
- e. Remove the breather from the top of the gearbox (a).
- f. Use a suitable dipstick to check the level.
- g. For the chassis gearbox the oil level should be 20mm (3/4") below the oil level plug hole (b).
- h. If necessary, add EP90 oil through the breather hole (a).
- i. Replace the breather and tighten securely.
  
- j. For the deck gearboxes the oil level should be between 80 and 100mm (3 1/4 to 4") below the lower edge of the plug or breather hole.
- k. If necessary, add EP90 oil through the breather hole.
- l. If any gearbox needs topping up frequently, check all plugs for tightness and inspect the seals on the input and output shafts for leaks. Repair if necessary.



## 2. Change the gearbox oil:

- a. **Every 1,000 hours** drain each gearbox.
- b. There is a drain plug in the gearbox, but it can be difficult to get to. Use an oil suction gun to remove all the oil through the breather plug. Suction guns are available from larger automotive supply companies.
- c. Dispose of oil according to local laws and regulations.
- d. Re-fill with EP90 gear oil. Capacities are:
  - I. Chassis gearbox, 1.4 litres (2.46 UK pints, 2.96 US pints)
  - II. Mower deck gearboxes, 1.4 litres (2.46 UK pints, 2.96 US pints). **Do not overfill or overheating and oil leaks will result.**
- e. Refit the breather and tighten securely.

## 16h. Driveshaft Maintenance.

### 1. General:

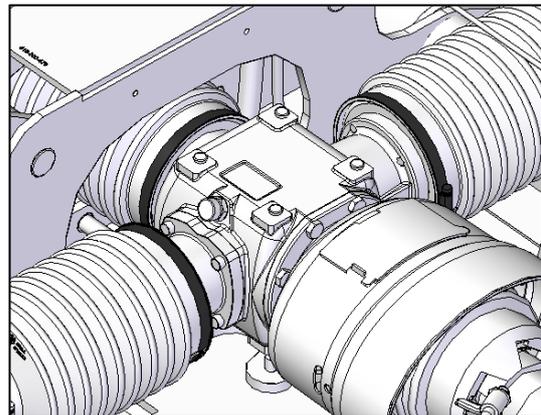
- a. The driveshafts that connects the tractor PTO output to the primary gearbox and the primary gearboxes to the mower deck gearboxes are complex pieces of equipment. **Regular maintenance is essential.**
- b. Driveshaft tubes **must always be able to telescope freely, or serious damage will result.**
- c. Driveshafts for **Trimax** mowers may be supplied by various manufacturers.
- d. Maintenance instructions may be attached to the driveshaft or included with this operator's manual. Follow the manufacturer's guidelines. If they are not available use the following guide.



**NOTE: The rear driveshaft is longer than the left and right shafts. Fitting the rear shaft to the left or right sides will cause severe damage to the shaft and gearboxes. Clearly mark each driveshaft or remove and work on one shaft at a time.**

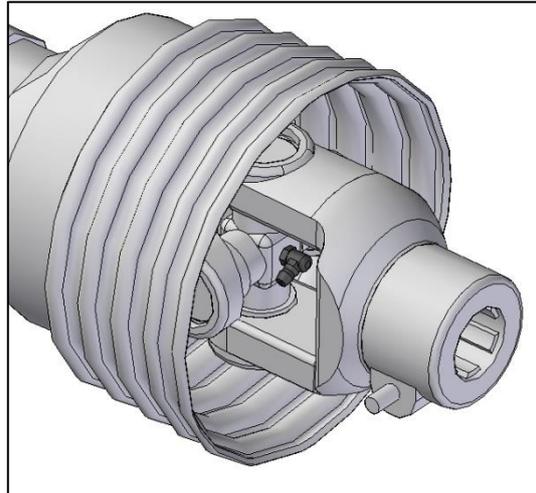
### 2. Guide to servicing all driveshafts:

- a. It is easiest to remove the driveshaft from the machine for servicing.
- b. Work on one driveshaft at a time so the same parts are always assembled together.
- c. Undo the large jubilee clip on the mower deck gearbox and slide the rubber concertina off the gearbox.
- d. Repeat for the opposite end.
- e. After greasing, refit the smaller cover tube to the chassis gearbox end. This helps prevent water and dirt running between the tubes when the decks are in the raised position.
- f. Fit both concertina covers back on loosely. Ensure the slipper bearing grease holes are facing upwards before tightening jubilee clips.



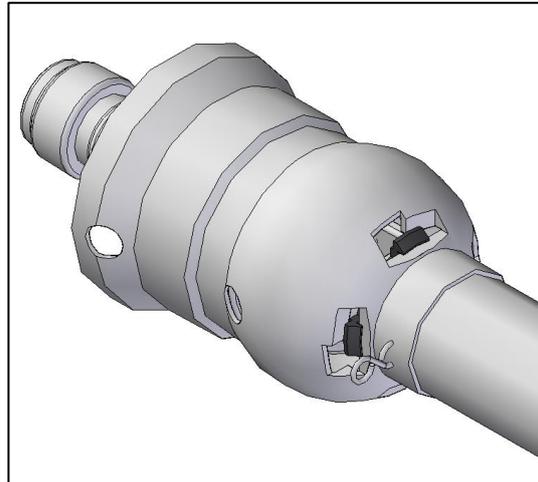
TRIMAX SNAKE S2 OPERATORS MANUAL  
ENGLISH EDITION  
©Trimax Mowing Systems (NZ) Ltd

b. **Every 40 hours or weekly**, grease the universal joints at either end of the driveshaft (a). Pump until grease starts to exit the seals (b).

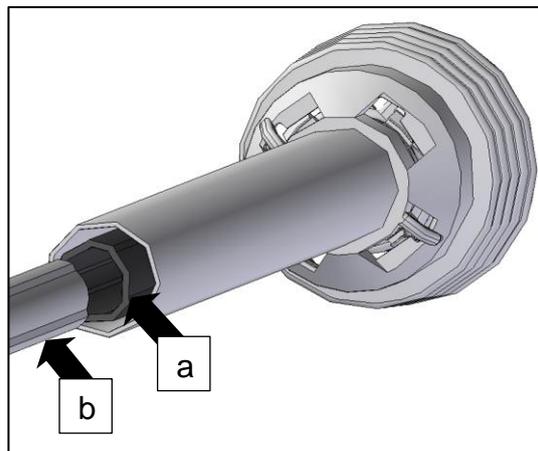


**NOTE:** Instructions for greasing the constant velocity (CV) joint on the primary driveshaft follow below.

c. **Every 40 hours or weekly**, grease the safety cover slipper bearings. Apply **2 pumps** to each slipper bearing.

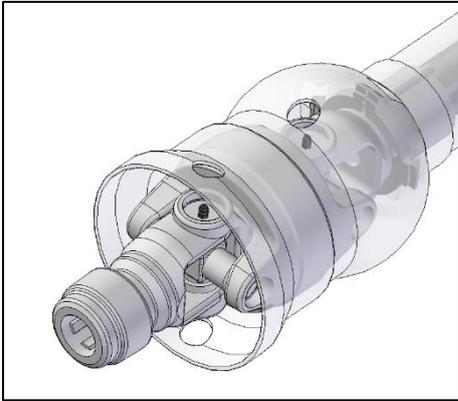


- Every 40 hours or weekly**, pull the two halves of the driveshaft apart.
- Apply a liberal coating of grease inside the larger tube (a) and on the outside of the visible part of the smaller tube (b).
- Re-assemble the two halves. Ensure they telescope smoothly.
- Oil** the quick-release coupling pin and sliding collars.



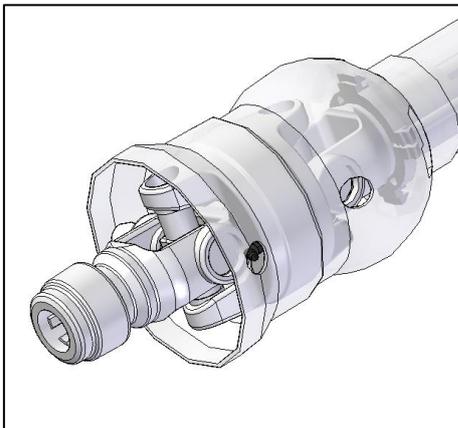
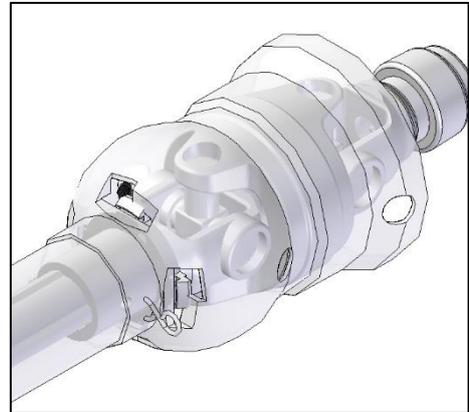
**3. Grease the primary driveshaft CV joint:**

- a. The CV joint has two universal joints coupled together with an enclosed disc between. The disc has two grease points.
- b. Holes in the safety shield allow access to these.



- c. **Every 40 hours or weekly**, rotate the cover until the grease points are visible.
- d. Apply **1 shot or 4 pumps** to each grease fitting.

- e. The rear grease point for the enclosed disc is accessible through the largest cut out in the tube end of the safety shield when the safety shield holes are aligned with the universal joint grease points.
- f. **Every 40 hours or weekly**, apply **1 shot or 4 pumps** to the grease fitting.



- g. The other grease point for the disc is accessible through the safety shield hole nearest the coupling. Rotate the safety shield about 10 degrees until it becomes visible.
- h. **Every 40 hours or weekly**, apply **1 shot or 4 pumps** to the grease fitting.

## 16i. Wheel & Tyres.



**DANGER!** Tyre and rim parts can explode if tyres are over-inflated causing serious injury or death. Always maintain the correct tyre pressure. Do not inflate the tyres above the recommended pressure.



**DANGER!** Never weld or heat a wheel and tyre assembly. The heat can cause an increase in air pressure resulting in a tyre explosion. Welding can structurally weaken or deform the wheel.



**CAUTION!** When inflating tyres use a clip-on fitting and extension hose long enough to allow you to stand to one side and NOT in front of or over the tyre assembly.

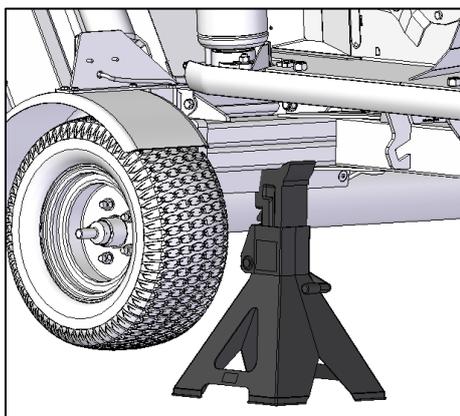
### 1. Check tyre pressures:

- a. Check the road wheel tyre pressures **weekly**.
- b. Tyres should be inflated to the pressures shown in the table. **NEVER EXCEED THE MAXIMUM INFLATION PRESSURE!**
- c. Inspect the tyres for wear, cuts, cracking, loose or missing stud nuts or other damage. Repair or replace if necessary.

Inflation Pressure	kPa		psi	
	Recommended	Maximum	Recommended	Maximum
Turf tyres 20x10.00-10	210	230	30	32

### 2. To remove the wheels:

- a. Park the mower on level ground.
- b. The mower decks can be raised or lowered, with the mower attached to the tractor or on its own.
- c. If the mower is to remain connected to the tractor, engage the parking brake, place all controls in neutral, stop the engine and remove the ignition key before proceeding further.
- d. Chock the wheel not being removed to prevent movement when jacking the other wheel up.



- e. Use a suitable jack with a capacity of at least 1,000kg (1 ton).
- f. Place the jack beneath the square steel tube that houses the suspension and jack the chassis up to take part of the weight. Do not lift the wheel clear of the ground at this stage.
- g. Use a wheel brace or a 21mm or 13/16" socket to loosen the wheel nuts. Turn them anti-clockwise to loosen. Do not remove the nuts.
- h. Jack the wheel clear of the ground.
- i. Remove the wheel nuts and the wheel.



**DANGER!** If the mower must be left jacked up and unattended while the tyre is being repaired place blocks or a suitable stand beneath the axle.

**3. Replace the wheels:**

- a. Ensure the wheel stud and nut threads are clean.
- b. Fit the wheel to the studs.
- c. Fit the stud nuts with the tapered side to the wheel. Lightly tighten each nut following a crossways pattern.
- d. Lower the jack until some of the weight of the mower is on the wheel.
- e. Fully tighten the wheel nuts to **75Nm (55 lb-ft)** in a cross-ways pattern then check each nut for tightness again.
- f. Lower the jack to clear the machine and remove it.

**4. Check the wheel bearings:**

- a. Check the wheel bearings **monthly**.
- b. Jack the chassis up as described above until the tyre is just off the ground.
- c. Rotate the wheel slowly to check for tightness or roughness.
- d. If the wheel does not turn easily the bearings may be adjusted too tightly.
- e. If roughness is detected the bearings must be dismantled, cleaned, inspected and replaced if necessary. Consult your service manager or automotive repair centre.
- f. Grasp the wheel at either side and move it firmly to check for any looseness in the bearings. If there is more than 1mm (1/16") of movement at the rim the wheel bearings may need to be adjusted. Consult your service manager or automotive repair centre.

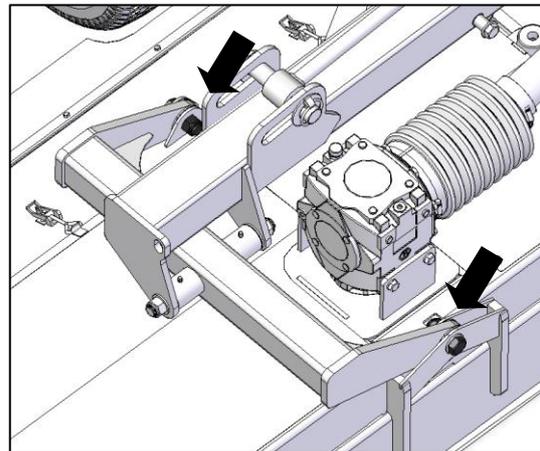
## 16j. Pitch & Roll Pivots.

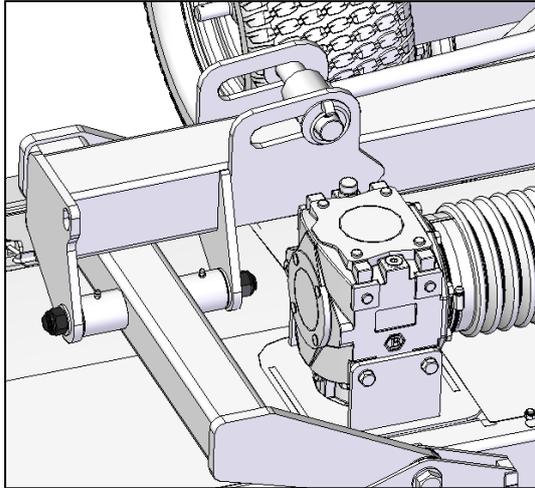
**1. General:**

- a. To articulate, the mower decks can "roll" to the left-and-right and "pitch" to front-and-rear. Roll and pitch pivots need to be checked for tightness **every 150 hours or monthly**.

**2. Check the roll pivots on all decks:**

- a. All decks have roll pivots, which are fixed by the large bolts at the front and rear of the superstructure.
- b. Inspect for any signs of movement between the bolt head and body and the nut and body.
- c. The side decks use a 30mm spanner to ensure the M20 bolts and nuts are tight (200Nm or 148 lb-ft).



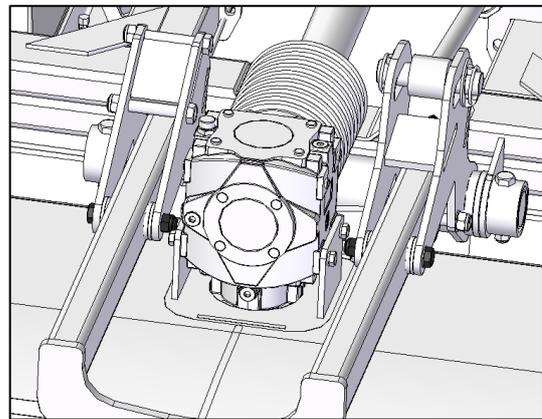


**3. Check the side deck pitch pivots:**

- a. The left and right decks have pitch pivots which are secured by the large nuts under each outrigger near the mower deck gearboxes.
- b. On the side decks inspect for any signs of movement between the nuts and the vertical plates projecting down from the outrigger.
- c. Use 30mm spanners to ensure the M20 bolts and nuts are very tight (200Nm or 148 lb-ft).
- d. After tightening the nuts, raise the left and right decks just clear of the ground. Grasp the outer end of the deck and pull it forwards and backwards. Pitch pivot bushes should be replaced if there is more than 0.5mm of movement in the pitch pivot assembly.

**4. Check the rear deck pitch pivots**

- a. Pitch pivots on the rear deck are at the end of each outrigger arm.
- b. Use a 24mm spanner to ensure the M16 bolts and nuts are tight (186Nm or 137 lb-ft).



**16k. Clearing Blockages.**

**1. In the event of a blockage in the cutting chamber:**

- a. Disengage the PTO immediately.
- b. Raise the mower decks to the transport position.
- c. Place all controls in neutral, apply the parking brake, stop the engine and remove the ignition key.
- d. Connect the transport safety cable between the outriggers.
- e. It is recommended to wear heavy gloves.
- f. Clear the blockage and check that all rotating parts move freely.
- g. Dispose of the removed material appropriately.

**16l. Cleaning.**

**1. General:**

- a. Clean the mower as soon as possible after mowing.
- b. Cleaning should be carried out in a designated area where dirt and grass clippings are trapped to protect drains and streams. Dispose of debris according to local bylaws.
- c. Park the mower with the mower decks raised to the transport position.
- d. Place all controls in neutral, apply the parking brake, stop the engine and remove the ignition key.
- e. Connect the transport safety cable between the outriggers.

**2. Clean the transmission chambers:**

- a. Release the cover latches and lift the cover to inspect for debris in the transmission area.
- b. Dry debris under the covers can be blown out with a leaf blower or wet clippings hosed out with water.

**3. Washing underneath:**

- a. Wash the underside of the mower with a water hose.
- b. **Avoid directing water jets at bearing housings**, especially if they are still warm after use. Hot housings may cool rapidly, drawing water into the bearings and causing **corrosion** and **rapid bearing wear**.
- c. Close the covers.

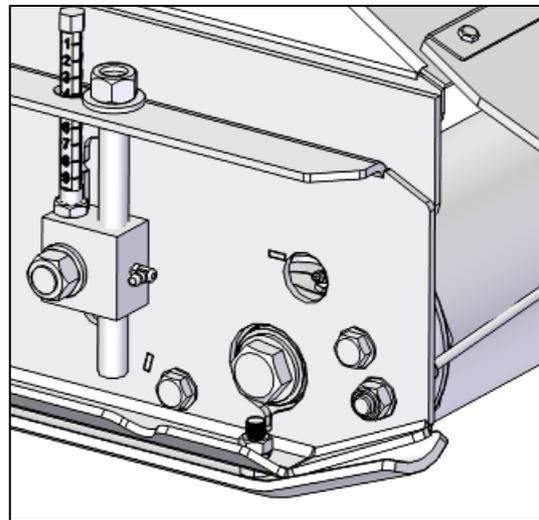
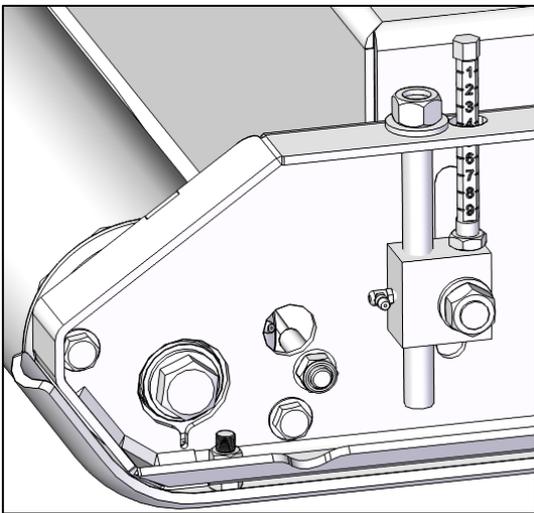
**4. Clean the stainless-steel covers:**

- a. Use detergent in warm water to remove grass stains.

## 16m. Roller Bearings

**1. General:**

- a. Check the roller bearings **monthly**.
- b. Check that the M20 bolts holding the roller to the bearings are tight.
- c. Raise all three decks up off the ground.
- d. Rotate the rollers by hand and check for free rotation without roughness or tightness.
- e. If the roller does not turn easily or there is abnormal roller movement, the bearings may be lacking grease and/or be worn.
- f. If roughness is detected the bearings must be dismantled, cleaned, inspected and replaced if necessary. Consult your service manager.



## 17. Service Schedule.

This service schedule is a record to be kept as maintenance is carried out. Copy the page to continue your record.

**IMPORTANT!** If using the mower in arduous conditions (e.g. excessively dusty or wet etc.) moving parts and driveshafts may require greasing more frequently.

<b>DATE</b>																				
<b>HOURS</b>																				
<b>SERVICED BY (Initials)</b>																				
<b>Annually or as required</b>																				
Change gearbox oil (4)																				
Grease height adjuster blocks (12)																				
Remove driveshafts (4), remove covers, clean & inspect, replace worn parts, grease & reassemble																				
Grease wheel bearings (2)																				



## 18. Troubleshooting.

FAULT	POSSIBLE CAUSES	REMEDY
Mower vibrates excessively	Excessive PTO speed	Run PTO at 540rpm
	Blades missing or badly damaged	Replace blades
	Primary driveshaft fitted wrong way round	Fit the constant velocity joint to the tractor
	Driveshafts worn	Repair or replace
	Primary driveshaft angle exceeding 80°	Limit turns, especially when reversing
Drive belts slipping	Excessive ground speed	Run PTO at 540rpm, vary transmission to travel more slowly
	Rotating parts not turning freely	Check for & remove any debris fouling blades
		Check blade spindle bearings, replace if necessary
	Mower scalping excessively	Raise cutting height
	Drive belts loose	Check spring on auto belt tension system
	Drive belts worn out	Replace drive belts
	Non-standard belts fitted	Use only genuine Trimax parts
	Tractor too powerful	Use a less powerful tractor or travel more slowly
Oil on drive belts	See below	
Oil or grease on drive belts	Too much oil in gearbox	Check gearbox oil level, drain to correct level, replace belts
	Gearbox seals leaking	Inspect gearbox for leaks, repair if necessary, replace belts
Excessive power required to drive mower	Rotating parts not turning freely	Check for and remove debris fouling blades
		Check blade spindle bearings, replace if necessary
	PTO speed too fast	Run PTO at 540rpm
	Excessive ground speed	Run PTO at 540rpm, vary transmission to travel more slowly
	Cutting height too low	Raise cutting height
		Cut more frequently

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	Cutting too much at once	Run PTO at 540rpm, vary transmission to travel more slowly Raise cutting height for first cut, lower cutting height & cut again in opposite direction
Excessive wheel marks or poor cutting finish	PTO speed too slow	Run PTO at 540rpm
	PTO speed too fast	Run PTO at 540rpm
	Cutting height too high	Lower cutting height
	Excessive ground speed	Run PTO at 540rpm, use transmission to travel more slowly
	Blades missing, damaged or worn out	Replace blades
	Ground too wet	Wait for ground to dry out
	Cutting too much at once	Raise cutting height for first cut, lower cutting height and cut again in opposite direction
	Lush grass sticking to underside of mower	Try running PTO at <b>450rpm</b> , use transmission to maintain ground speed
Some long grass left un-cut	Blades missing, damaged or worn out	Replace blades
	Debris trapped under mower	Clear debris
	Mower dirty	Wash grass from cutting chambers after use
Excessive clumping or clippings build up over rear roller	Steel anti-droop under rubber flap bent, blocking exit path	Straighten steel anti-droop strip
Mower scalps excessively	Cutting too low	Raise cutting height
		Fit optional Anti Wear Skids (AWS)
Mower decks do not follow contours	Auxiliary hydraulic valve not in float position	Use correct auxiliary hydraulic circuit. Set valve to float position
	No float position available	Hold hydraulic lever in down position while mower decks traverse dips
Mower deck skids mark turf	Ground contours too extreme for mower	Change mowing pattern to approach contours from different angle
	Wear skids too low	Adjust wear skids
Blades leave scalloped pattern on turf	Travel speed too fast	Select a lower gear, travel more slowly
	Mower decks bouncing	Fit optional wear skids

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Tail lights fail to operate	Plugs & sockets not connected	Check all connections
	Wiring damaged	Repair or replace
Roller or spindle bearings fail	Water in bearings	Do not direct hoses or pressure washers at bearings
Primary driveshaft CV joint breaks	Driveshaft angle exceeds 80°	Limit turn angles, especially when reversing
Poor cut or spread on side decks only	Blades turning backwards	Chassis gearbox fitted incorrectly. Un-bolt gearbox & rotate 180 degrees.
Wheels skid & damage turf while mowing	Brakes operating when mowing decks are lowered	Turn off electric brakes
Left or right mower deck guide plates misaligned with rollers on chassis when deck in transport position.	Outrigger bent	Replace outrigger. Consult dealer or Trimax Mowing Systems.
	Pitch & roll pivots loose or worn	Inspect pitch & roll pivots, tighten or repair
Outrigger hydraulic cylinder clash	Outrigger hinge shims not installed correctly or worn	Insure shim 418-000-001 is installed on the correct side of hinge to space cylinder from guide mount plate
Primary driveshaft CV joint breaks	Driveshaft angle exceeds 80°	Limit turn angles, especially when reversing

## 19. Lifting & Transporting.



**SAFETY!** Only trained people should use lifting equipment and secure the mower for transport.



**SAFETY!** Before lifting or transporting the mower, review the hazard identification table (section 3a) and take all necessary precautions.

### 1. General:

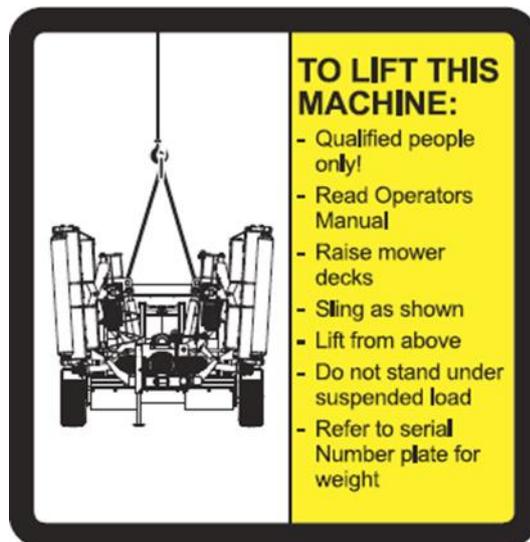
- If it is ever necessary to lift the mower to load it onto a truck or trailer for transport (for instance) it is imperative to lift it correctly.
- The machine could weigh up to 1,400 kg (3,100 lbs)
- There are many sections that move independently.
- With the mower decks raised it also has a high centre-of-gravity and may topple if not secured correctly.
- Labels are fixed to the mower showing the recommended lifting method.



**DANGER!** Never attempt to lift the mower from underneath using a fork hoist! Not only is this **EXTREMELY DANGEROUS**, but the forks will also damage parts of the mower. Follow the procedure below to prevent accidents or damage.

### 2. To lift the mower:

- Raise the decks into the transport position, ensuring the transport locks engage fully.
- Fit the transport safety cable to ensure the mower decks cannot lower unexpectedly.
- Lower the parking jack and adjust it to carry the weight of the drawbar.
- Disconnect the transport lock release rope, electrical cables and hydraulic hoses from the tractor.
- Disconnect the primary driveshaft from the tractor and secure it to the mower.
- Disconnect the tractor from the mower and move it safely out of the way.
- The mower **MUST** be suspended from above using slings, ropes or chains. Two slings, ropes or chains will be required. The total weight could be up to 1,400kg (3,100lbs). Ensure all lifting equipment has the appropriate rating.
- Attach one sling, rope, or chain using a D shackle to the end of the lift ram slot at the rear of each side outrigger.
- Once again use suitable padding to protect the paint if necessary.
- Securely connect all slings, ropes or chains to the hook of the crane or lifting device.
- Lift the mower carefully until it is just clear of the ground. The front will raise first. This allows it to be manoeuvred around on its wheels when lowering it onto the deck of a truck.

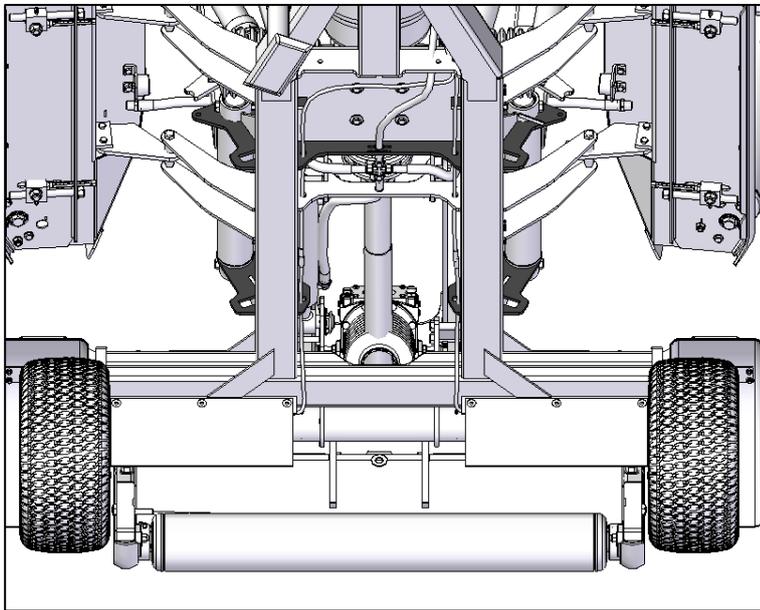




**DANGER!** Keep well clear of the suspended mower.

**1. Securing the mower onto a truck or trailer:**

- a. Tie-down points are provided on the mower chassis underneath.
- b. Use these to connect approved chains or webbing.
- c. Use suitable padding to protect finished surfaces and from sharp corners.
- d. Connect the free ends to approved tie-down points on either side of the trailer or truck at deck level (not higher).
- e. Straps or chains should be attached well forward of the mower at the front and well behind the mower at the rear.
- f. Ensure the machine is properly secured according to local transport regulations before moving the vehicle.



## 20. Storage.



**SAFETY!** Before preparing the mower for storage, review the hazard identification table (section 3a) and take all necessary precautions.

1. **General:**
  - a. After a season's use, the machine should be thoroughly inspected and prepared for storage.
2. **Prepare the mower for storage:**
  - a. Fully clean the mower – Wash down if temperatures are above freezing or brush down all loose debris if residual moisture is likely to freeze.
  - b. If the mower has tyres check their condition, and inflate to the recommended pressure
  - c. Inspect the mower for damage to structural components, bearings, spindles, wiring etc. Repair or replace any damaged items.
  - d. Inspect all bolts and check they are tight. Add a paint stripe on the bolt head to mark it as completed.
  - e. Inspect the gearbox oil level and clarity – fill or replace if required
  - f. Remove PTO's and their covers then fully grease inner tube & joints. Assemble PTO covers and install on the mower
  - g. Grease Gearbox input shafts.
  - h. Grease all grease points until grease begins to weep from seals or bushes.
  - i. Spray copper coat anti-seize around all spindle flange plates as shown below.
  - j. Store the mower indoors if possible, otherwise if storing outdoors for an extended period ensure the mower is covered with a waterproof cover.
  - k. Fill out mower maintenance records in the operators manual.
  - l. Before first run up after wintering - spray all spindle flange plates with penetrating oil spray (maybe PB blaster spray or Rocol), grease all grease points as above and ensure all drive belts are tensioned correctly. Run through the pre-start checklist.

## 21. Tools.

### 1. General:

- a. Most repairs and adjustments on **Trimax** mowers can be carried out using standard engineering tools.
- b. Height adjustment is much simpler with the following:
  - i. ½" drive power bar
  - ii. Extra-long ½" drive extension (or two standard long extensions)
  - iii. 24mm ½" drive socket.These tools are included with the machine in some markets.

## 22. Bolts & Nuts.

### 1. General:

- a. Most bolts used on **Trimax** machines except fling-tip blade bolts have metric threads and are of grade 8.8. Bolt heads should have the maker's symbol and "88" embossed on their heads.
- b. Always replace with bolts of the same strength.
- c. Fling-tip blade mounting bolts must be genuine **Trimax** parts.
- d. Thread pitch is shown on the chart below. "M12x1.75" represents a 12mm diameter bolt with a thread pitch of 1.75mm. Thread pitch is normally omitted so that an M12 bolt that is 65mm long is known as an "M12 x 65 bolt".

### 2. Torque figures:

- a. Torque figures indicated on the table are valid for non-greased or non-oiled threads.
- b. Do not grease or oil bolts or cap screws unless otherwise specified in this manual.
- c. Tighten all bolts to the torques specified below unless otherwise noted.
- d. Check bolt tightness periodically.

BOLT SIZE (mm)	Newton metres (Nm)	Pounds-feet (lb-ft)
<b>M6 x 1.00</b>	9	7
<b>M8 x 1.25</b>	22	16
<b>M10 x 1.50</b>	43	32
<b>M12 x 1.75</b>	75	55
<b>M16 x 2.00</b>	186	137
<b>M20 x 2.50 pitch pivot &amp; roll pivot nuts</b>	200	148
<b>LazerBlades™ Retaining bolts</b>	80	60
<b>Wheel stud nuts</b>	120	80

## 23. Spare Parts.

### 1. General:

- a. **Trimax Mowing Systems** constantly works to refine and develop its product range.
- b. **Trimax** reserves the right to change the specifications of its products without incurring any obligations to owners of units previously sold.
- c. Every effort is made to keep new parts compatible with those which they replace.
- d. Where this is not possible it is company policy to provide parts for any machine for many years after the cessation of manufacture.
- e. Parts should be ordered from the dealer that supplied your mower. The listing below covers the parts most likely to be required in normal use.

### 2. Parts to keep in stock.

- a. A complete set of blades.
- b. A complete set of blade mounting bolts and nuts.
- c. A complete set of drive belts.

### 3. Order spare parts:

- a. Identify the parts you want from the following list.
- b. **Always quote the machine's serial number when ordering parts.**
- c. Full parts drawings and listings are available on the "**My Trimax**" section of the **Trimax Mowing Systems** website. See section 1a for more details.

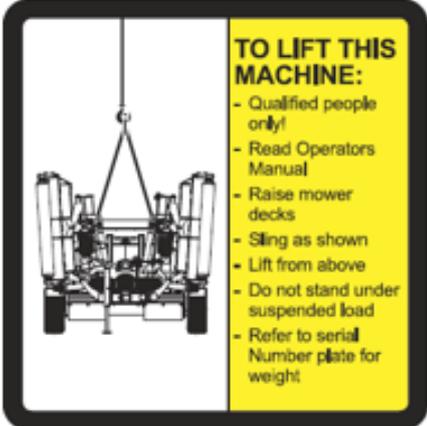
DESCRIPTION	PART NUMBER	QUANTITY PER MOWER	QUANTITY PER MOWER
		320	400
LazerBladez™ fling-tip blade standard	411-160-842	18	22
LazerBladez™ blade bolt & nut	411-322-050	18	22
Drive belt - mower deck B49	404-040-495	0	2
Drive belt - mower deck B95	404-040-962	3	3
Roller bearing kit	401-020-701	12	12
Primary driveshaft PTO	406-000-001	1	1
Side Deck PTO	406-000-023	2	2
Rear Deck PTO	406-000-017	1	1
Tow Eye Wear Bush	402-840-130	1	1
Idler pulley assembly - drive belts	403-000-091	6	8
Toggle latch - cover	423-080-220	6	8
Height adjuster screw	412-850-251	12	12
Height adjuster block	412-000-255	12	12
Height indicator rod	412-000-256	12	12
Height adjuster locking washer	308-160-083	12	12
Wheel bearing kit	401-860-470	2	2
Thrust washer - mower deck pivot	403-840-520	12	12
Spindle bearing kit	407-000-028	9	11
<b>Options</b>			
Roller scraper	404-000-057	3 or 6	3 or 6
LazerBladez fling-tip blade flat	411-160-840	18	22
Tow hitch clevis kit	808-000-017	1	2
Anti Wear Skids (AWS)	412-000-302	6	6

## 24. Supplement.

### 24a. Snake Lifting and Tiedown Instructions



## SNAKE LIFTING AND TIEDOWN INSTRUCTIONS

LIFTING INSTRUCTIONS	
<p>Only use the indicated lifting points shown on the decal when lifting mower.</p> <p>The lifting decal indicates lifting points that will give the safest most stable lift.</p> <p>Use designated lifting points to avoid paint damage to the mower!</p> <p>Approx. weight Refer to serial number plate</p>	

TIEDOWN INSTRUCTIONS	
<p>Ensure safety cable is connected between raised side decks while transporting.</p> <p>Only use the designated tiedown points to secure the mower during transport. Tiedown points can be found on <b>BOTH</b> sides of the mower.</p> <p><b>DO NOT</b> strop over frame to secure mower! Use tiedown points to avoid paint damage to the mower.</p> <p>Front tiedowns use brackets on underside of frame Rear tiedowns use brackets on underside of frame</p>	