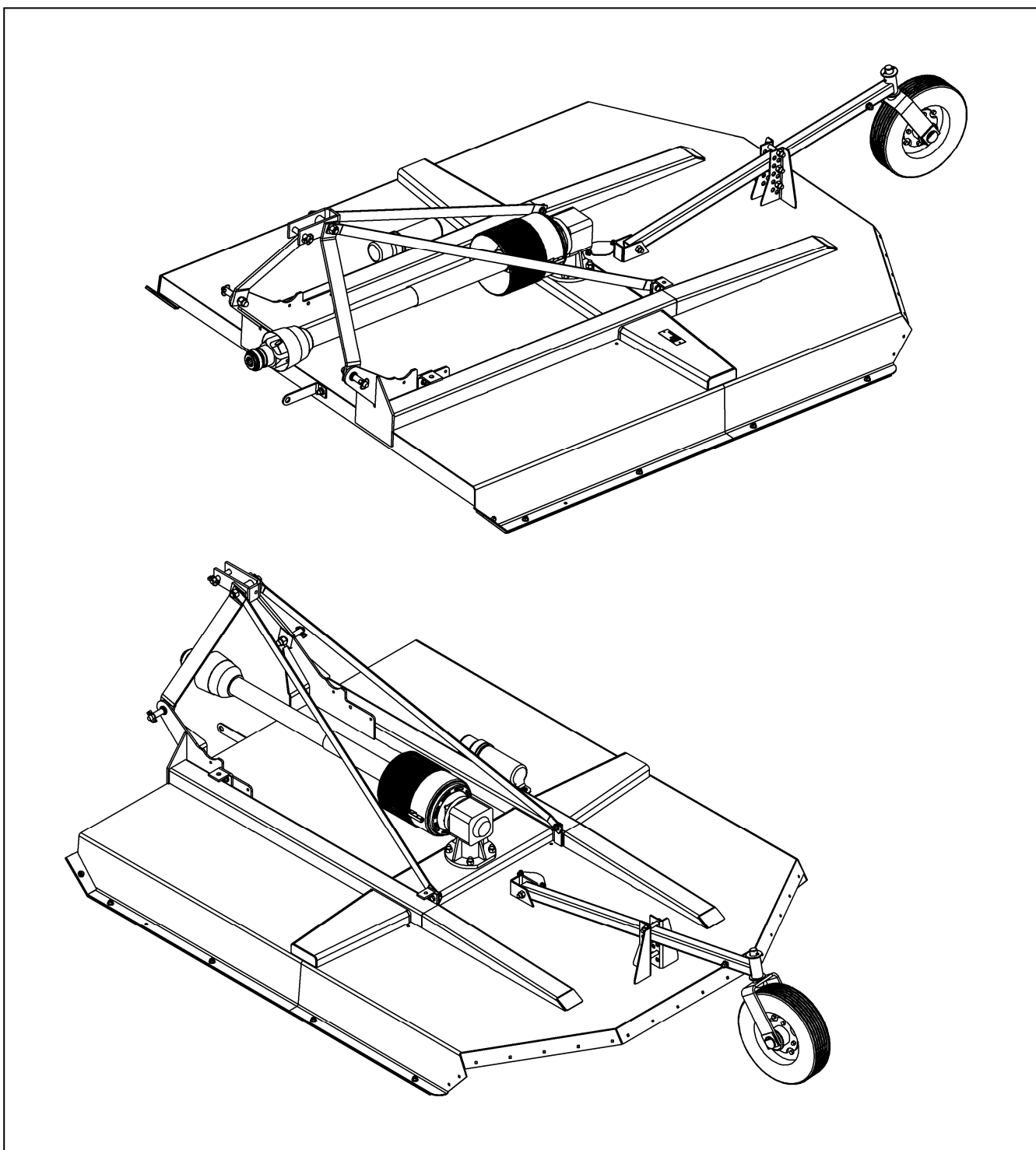


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SE5, SE6 & SE7 ROTARY MOWERS

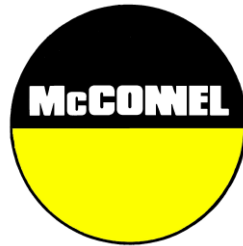


Operator Manual



IMPORTANT

VERIFICATION OF WARRANTY REGISTRATION



DEALER WARRANTY INFORMATION & REGISTRATION VERIFICATION

It is imperative that the selling dealer registers this machine with McConnel Limited before delivery to the end user – failure to do so may affect the validity of the machine warranty.

To register machines go to the McConnel Limited web site at www.mcconnel.com, log onto 'Dealer Inside' and select the 'Machine Registration button' which can be found in the Service Section of the site. Confirm to the customer that the machine has been registered in the section below.

Should you experience any problems registering a machine in this manner please contact the McConnel Service Department on 01584 875848.

Registration Verification

Dealer Name:
Dealer Address:
Customer Name:
Date of Warranty Registration:/...../..... Dealer Signature:

NOTE TO CUSTOMER / OWNER

Please ensure that the above section above has been completed and signed by the selling dealer to verify that your machine has been registered with McConnel Limited.

IMPORTANT: During the initial 'bedding in' period of a new machine it is the customer's responsibility to regularly inspect all nuts, bolts and hose connections for tightness and re-tighten if required. New hydraulic connections occasionally weep small amounts of oil as the seals and joints settle in – where this occurs it can be cured by re-tightening the connection – refer to torque settings chart below. The tasks stated above should be performed on an hourly basis during the first day of work and at least daily thereafter as part of the machines general maintenance procedure.

CAUTION: DO NOT OVER TORQUE HYDRAULIC FITTINGS AND HOSES

TORQUE SETTINGS FOR HYDRAULIC FITTINGS

HYDRAULIC HOSE ENDS		
BSP	Setting	Metric
1/4"	18 Nm	19 mm
3/8"	31 Nm	22 mm
1/2"	49 Nm	27 mm
5/8"	60 Nm	30 mm
3/4"	80 Nm	32 mm
1"	125 Nm	41 mm
1.1/4"	190 Nm	50 mm
1.1/2"	250 Nm	55 mm
2"	420 Nm	70 mm

PORT ADAPTORS WITH BONDED SEALS		
BSP	Setting	Metric
1/4"	34 Nm	19 mm
3/8"	47 Nm	22 mm
1/2"	102 Nm	27 mm
5/8"	122 Nm	30 mm
3/4"	149 Nm	32 mm
1"	203 Nm	41 mm
1.1/4"	305 Nm	50 mm
1.1/2"	305 Nm	55 mm
2"	400 Nm	70 mm

WARRANTY POLICY

WARRANTY REGISTRATION

All machines must be registered, by the selling dealer with McConnel Ltd, before delivery to the end user. On receipt of the goods it is the buyer's responsibility to check that the Verification of Warranty Registration in the Operator's Manual has been completed by the selling dealer.

1. LIMITED WARRANTIES

- 1.01. *All mounted machines supplied by McConnel Ltd are warranted to be free from defects in material and workmanship from the date of sale to the original purchaser for a period of 12 months, unless a different period is specified.
All Self Propelled Machines supplied by McConnel Ltd are warranted to be free from defects in material and workmanship from the date of sale to the original purchaser for a period of 12 months or 1500 hours. Engine warranty will be specific to the Manufacturer of that unit.*
- 1.02. *All spare parts supplied by McConnel Ltd and purchased by the end user are warranted to be free from defects in material and workmanship from the date of sale to the original purchaser for a period of 6 months. All parts warranty claims must be supported by a copy of the failed part invoice to the end user. We cannot consider claims for which sales invoices are not available.*
- 1.03. *The warranty offered by McConnel Ltd is limited to the making good by repair or replacement for the purchaser any part or parts found, upon examination at its factory, to be defective under normal use and service due to defects in material or workmanship. Returned parts must be complete and unexamined. Pack the component(s) carefully so that any transit damage is avoided. All ports on hydraulic items should be drained of oil and securely plugged to prevent seepage and foreign body ingress. Certain other components, electrical items for example, may require particular care when packing to avoid damage in transit.*
- 1.04. *This warranty does not extend to any product from which McConnel Ltd's serial number plate has been removed or altered.*
- 1.05. *The warranty policy is valid for machines registered in line with the terms and conditions detailed and on the basis that the machines do not extend a period of 24 months or greater since their original purchase date, that is the original invoice date from McConnel Limited.
Machines that are held in stock for more than 24 months cannot be registered for warranty.*
- 1.06. *This warranty does not apply to any part of the goods, which has been subjected to improper or abnormal use, negligence, alteration, modification, fitment of non-genuine parts, accident damage, or damage resulting from contact with overhead power lines, damage caused by foreign objects (e.g. stones, iron, material other than vegetation), failure due to lack of maintenance, use of incorrect oil or lubricants, contamination of the oil, or which has served its normal life. This warranty does not apply to any expendable items such as blades, belts, clutch linings, filter elements, flails, flap kits, skids, soil engaging parts, shields, guards, wear pads, pneumatic tyres or tracks.*
- 1.07. *Temporary repairs and consequential loss - i.e. oil, downtime and associated parts are specifically excluded from the warranty.*
- 1.08. *Warranty on hoses is limited to 12 months and does not include hoses which have suffered external damage. Only complete hoses may be returned under warranty, any which have been cut or repaired will be rejected.*
- 1.09. *Machines must be repaired immediately a problem arises. Continued use of the machine after a problem has occurred can result in further component failures, for which McConnel Ltd cannot be held liable, and may have safety implications.*
- 1.10. *If in exceptional circumstances a non McConnel Ltd part is used to effect a repair, warranty reimbursement will be at no more than McConnel Ltd's standard dealer cost for the genuine part.*
- 1.11. *Except as provided herein, no employee, agent, dealer or other person is authorised to give any warranties of any nature on behalf of McConnel Ltd.*

- 1.12. For machine warranty periods in excess of 12 months the following additional exclusions shall apply:
- 1.12.1. Hoses, exposed pipes and hydraulic tank breathers.
 - 1.12.2. Filters.
 - 1.12.3. Rubber mountings.
 - 1.12.4. External electric wiring.
 - 1.12.5. Bearings and seals
 - 1.12.6. External Cables, Linkages
 - 1.12.7. Loose/Corroded Connections, Light Units, LED's
 - 1.12.8. Comfort items such as Operator Seat, Ventilation, Audio Equipment
- 1.13. All service work, particularly filter changes, must be carried out in accordance with the manufacturer's service schedule. Failure to comply will invalidate the warranty. In the event of a claim, proof of the service work being carried out may be required.
- 1.14. Repeat or additional repairs resulting from incorrect diagnosis or poor quality previous repair work are excluded from warranty.

NB Warranty cover will be invalid if any non-genuine parts have been fitted or used. Use of non-genuine parts may seriously affect the machine's performance and safety. McConnel Ltd cannot be held responsible for any failures or safety implications that arise due to the use of non-genuine parts.

2. REMEDIES AND PROCEDURES

- 2.01. The warranty is not effective unless the Selling Dealer registers the machine, via the McConnel web site and confirms the registration to the purchaser by completing the confirmation form in the operator's manual.
- 2.02. Any fault must be reported to an authorised McConnel Ltd dealer as soon as it occurs. Continued use of a machine, after a fault has occurred, can result in further component failure for which McConnel Ltd cannot be held liable.
- 2.03. Repairs should be undertaken within two days of the failure. Claims submitted for repairs undertaken more than 2 weeks after a failure has occurred, or 2 days after the parts were supplied will be rejected, unless the delay has been authorised by McConnel Ltd. Please note that failure by the customer to release the machine for repair will not be accepted as a reason for delay in repair or submitting warranty claims.
- 2.04. All claims must be submitted, by an authorised McConnel Ltd Service Dealer, within 30 days of the date of repair.
- 2.05. Following examination of the claim and parts, McConnel Ltd will pay, at their discretion, for any valid claim the invoiced cost of any parts supplied by McConnel Ltd and appropriate labour and mileage allowances if applicable.
- 2.06. The submission of a claim is not a guarantee of payment.
- 2.07. Any decision reached by McConnel Ltd. is final.

3. LIMITATION OF LIABILITY

- 3.01. McConnel Ltd disclaims any express (except as set forth herein) and implied warranties with respect to the goods including, but not limited to, merchantability and fitness for a particular purpose.
- 3.02. McConnel Ltd makes no warranty as to the design, capability, capacity or suitability for use of the goods.
- 3.03. Except as provided herein, McConnel Ltd shall have no liability or responsibility to the purchaser or any other person or entity with respect to any liability, loss, or damage caused or alleged to be caused directly or indirectly by the goods including, but not limited to, any In direct, special, consequential, or incidental damages resulting from the use or operation of the goods or any breach of this warranty. Notwithstanding the above limitations and warranties, the manufacturer's liability hereunder for damages incurred by the purchaser or others shall not exceed the price of the goods.
- 3.04. No action arising out of any claimed breach of this warranty or transactions under this warranty may be brought more than one (1) year after the cause of the action has occurred.

4. MISCELLANEOUS

- 4.01. McConnel Ltd may waive compliance with any of the terms of this limited warranty, but no waiver of any terms shall be deemed to be a waiver of any other term.*
- 4.02. If any provision of this limited warranty shall violate any applicable law and is held to be unenforceable, then the invalidity of such provision shall not invalidate any other provisions herein.*
- 4.03. Applicable law may provide rights and benefits to the purchaser in addition to those provided herein.*

McConnel Limited



DECLARATION OF CONFORMITY

Conforming to EU Machinery Directive 2006/42/EC

We,

McCONNEL LIMITED, Temeside Works, Ludlow, Shropshire SY8 1JL, UK

Hereby declare that:

The Product; *Tractor Mounted Rotary Mowers*

Product Code; *SE-4, SE-5, SE-6, SE-7*

Serial No. & Date Type

Manufactured in; *United Kingdom*

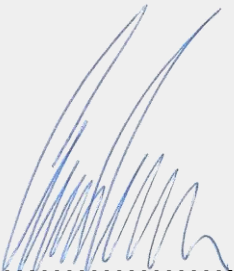
Complies with the required provisions of the Machinery Directive 2006/42/EC
The machinery directive is supported by the following harmonized standards;

- BS EN ISO 12100 (2010) Safety of machinery – General principles for design – Risk assessment and risk reduction.
- BS EN 349 (1993) + A1 (2008) Safety of machinery - Minimum distances to avoid the entrapment with human body parts.
- BS EN ISO 14120 (2015) Safety of machinery - Guards general requirements for the design and construction of fixed and movable guards.
- BS EN 4413 (2010) Hydraulic fluid power. Safety requirements for systems and their components.

McCONNEL LIMITED operates an ISO 9001:2008 quality management system, certificate number: FM25970.

This system is continually assessed by the;

British Standards Institution (BSI), Beech House, Milton Keynes, MK14 6ES, UK
BSI is accredited by UK Accreditation Service, accreditation number: UKAS 003.
The EC declaration only applies if the machine stated above is used in accordance with the operating instructions.

Signed  *Responsible Person*
CHRISTIAN DAVIES on behalf of McCONNEL LIMITED

Status: *General Manager*

Date: *January 2018*

ROTARY MOWER INSPECTION AND MAINTENANCE

A daily equipment inspection of the tractor and mower should be conducted before the equipment is used. You may use the inspection sheets to assist with these daily inspections. Any damaged or missing guards should be repaired or replaced before operating the mower. Failure to repair the damaged shield can result in objects being thrown from the mower and possibly hitting the operator or bystander.

Inspect the Mower for Safe Operating Condition

- Make sure the driveline guards and shielding are in place and in good repair.
- Inspect the chain guards, flexible and/or solid deflector thrown object shielding to assure that they are in place on the front and rear of the mower deck and in good repair. Repair or replace any damaged or missing thrown object shields.
- Remove all debris and cut material from the deck and around the gearboxes.
- Ensure the mower cutting height is set high enough to reduce the possibility of the mower blades contacting the ground. Actual height will be dependent on the ground conditions. Increase the height when working in rough or undulating conditions.
- Inspect for broken, chipped, bent, missing, or severely worn blades. Replace damaged blades before operating the mower. Ensure the blade retaining bolts and fasteners are secure and tight.
- Lubricate the driveline universal joints and telescoping members daily.
- Inspect the wheel lug bolt/nuts to assure that they are tight.
- If mower is equipped with pneumatic tires, make sure they have the required air pressure.
- Inspect for worn or damaged decals and safety instructions. Replace unreadable, damaged or missing safety decals.
- Follow the operator's manual(s) inspection and maintenance instructions for lubricating parts, and keeping thrown object shielding, driveline guards, rotating parts shields, mower blades and decals in good repair.

Inspect the Tractor for Safe Operating Condition:

- Inspect the controls, lights, SMVs (Slow Moving Vehicle sign), seat belts, and ROPS to assure that they are in place and in good working order.
- Be sure the tires, wheels, lug bolts/nuts are in good condition.
- Make sure the tractor brakes and steering are in proper operating condition.
- Follow the operator's manual(s) inspection and maintenance procedures for keeping the tractor in good and safe condition before operating.

The inspection sheet on the following page should be kept in this book as a record. A second sheet is included for you to cut out and photocopy or the inspection sheets can be downloaded from our web site at;

<http://www.mcconnel.com/support/aftersales/default.aspx?nav=After Sales>



MOUNTED ROTARY MOWER PRE-OPERATION Inspection

Mower ID _____ Date: _____ Shift: _____

WARNING



Before conducting the inspection, make sure the tractor engine is off, the key removed, all rotation has stopped and the tractor is in park with the parking brake engaged. Make sure the mower is resting on the ground or securely blocked up.

Item	Condition at start of shift	Specific Comments if not O.K.
The Operator's Manual is in the Canister on the mower		
All Warning Decals are in place, clean and legible		
The mower decks are clear of cut grass and debris		
Chain Guards/Deflectors are in place & in good condition		
Driveline/Gearbox shields/guards are in good condition		
Driveline clutches are in good condition, not frozen		
Driveline telescoping members & u-joints are lubricated		
Driveline yokes are securely attached to tractor & mower		
Gearbox mounting bolts are tight		
Blade carrier retaining nut is tight		
Blades are not chipped, cracked, bent or worn out		
Blade bolts are tight		
Side skirts and skids are in good condition		
There are no holes or cracks in the machine deck		
Wheel nuts are tight		
All linkage mounting pins are securely fastened		
Lift height is restricted to prevent PTO hitting the deck		

Operators Signature: _____

DO NOT OPERATE an UNSAFE TRACTOR or MOWER



TRACTOR PRE-OPERATION Inspection

Power Arm ID _____ Date: _____ Shift: _____

WARNING



Before conducting the inspection, make sure the tractor engine is off, the key is removed all rotation has stopped and the tractor is in park with the parking brake engaged. Any implement attached to the tractor is firmly on the ground.

Item	Condition at start of shift	Specific Comments if not O.K.
The flashing lights function properly.		
All lights are clean and working correctly		
All cab windows are clean and wipers working correctly		
The SMV sign, where required, is clean and visible.		
The tyres are in good condition with correct pressure.		
The wheel nuts are tight.		
The tractor brakes are in good condition.		
The steering linkage is in good condition.		
There are no visible oil leaks.		
The hydraulic controls function properly.		
The ROPS or ROPS cab is in good condition.		
The seatbelt is in place and in good condition.		
The 3-point hitch is in good condition.		
The drawbar/pick up hook is secure & in good condition		
The PTO master shield is in place.		
The engine oil level is full.		
The brake fluid level is full.		
The power steering fluid level is full.		
The fuel level is adequate.		
The engine coolant fluid level is full.		
The radiator & oil cooler are free of debris.		
The air filter is in good condition		

Operators Signature: _____

DO NOT OPERATE an UNSAFE TRACTOR or MOWER



MOUNTED ROTARY MOWER PRE-OPERATION Inspection

Mower ID _____ Date: _____ Shift: _____

WARNING



Before conducting the inspection, make sure the tractor engine is off, the key removed, all rotation has stopped and the tractor is in park with the parking brake engaged. Make sure the mower is resting on the ground or securely blocked up.

Item	Condition at start of shift	Specific Comments if not O.K.
The Operator's Manual is in the Canister on the mower		
All Warning Decals are in place, clean and legible		
The mower decks are clear of cut grass and debris		
Chain Guards/Deflectors are in place & in good condition		
Driveline/Gearbox shields/guards are in good condition		
Driveline clutches are in good condition, not frozen		
Driveline telescoping members & u-joints are lubricated		
Driveline yokes are securely attached to tractor & mower		
Gearbox mounting bolts are tight		
Blade carrier retaining nut is tight		
Blades are not chipped, cracked, bent or worn out		
Blade bolts are tight		
Side skirts and skids are in good condition		
There are no holes or cracks in the machine deck		
Wheel nuts are tight		
All linkage mounting pins are securely fastened		
Lift height is restricted to prevent PTO hitting the deck		

Operators Signature: _____

DO NOT OPERATE an UNSAFE TRACTOR or MOWER



TRACTOR PRE-OPERATION Inspection

Power Arm ID _____ Date: _____ Shift: _____

WARNING



Before conducting the inspection, make sure the tractor engine is off, the key is removed all rotation has stopped and the tractor is in park with the parking brake engaged. Any implement attached to the tractor is firmly on the ground.

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The SMV sign, where required, is clean and visible.		
The tyres are in good condition with correct pressure.		
The wheel nuts are tight.		
The tractor brakes are in good condition.		
The steering linkage is in good condition.		
There are no visible oil leaks.		
The hydraulic controls function properly.		
The ROPS or ROPS cab is in good condition.		
The seatbelt is in place and in good condition.		
The 3-point hitch is in good condition.		
The drawbar/pick up hook is secure & in good condition		
The PTO master shield is in place.		
The engine oil level is full.		
The brake fluid level is full.		
The power steering fluid level is full.		
The fuel level is adequate.		
The engine coolant fluid level is full.		
The radiator & oil cooler are free of debris.		
The air filter is in good condition		

Operators Signature: _____

DO NOT OPERATE an UNSAFE TRACTOR or MOWER

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GENERAL INFORMATION

Always read this manual before fitting or operating the machine – whenever any doubt exists contact your dealer or the McConnel Service Department for advice and assistance.

Use only McConnel Genuine Service Parts on McConnel Equipment and Machines

DEFINITIONS – The following definitions apply throughout this manual:

WARNING

An operating procedure, technique etc., which –
can result in personal injury or loss of life if not observed carefully.

CAUTION

An operating procedure, technique etc., which –
can result in damage to either machine or equipment if not observed carefully.

NOTE

An operating procedure, technique etc., which –
is considered essential to emphasis.

LEFT AND RIGHT HAND

This term is applicable to the machine when attached to the tractor and is viewed
from the rear – this also applies to tractor references.

MACHINE & DEALER INFORMATION

Record the Serial Number of your machine on this page and always quote this number when ordering parts. Whenever information concerning the machine is requested remember also to state the make and model of tractor to which the machine is fitted.

Machine Serial Number:	Installation Date:
Machine Model details:	
Dealer Name:	
Dealer Address:	
Dealer Telephone No:	
Dealer Email Address:	

MACHINE DESCRIPTION & PURPOSE OF USE

The SE Range of machines are '3-point linkage' tractor mounted rotary mowers ideal for the cutting of grass, weeds and pasture materials of up to 25mm (1") diameter. The flexible 3-point hitch design allows the mower to follow the contours of the ground for optimum cutting performance with minimum stress on the machine and tractor. A rear tail wheel with puncture proof tyre is fitted as standard for control of cutting height.

Machines are suitable for tractors of 15HP and over with 540RPM PTO speed.

These machines should only be used to perform tasks for which they were designed – use of the machine for any other function may be both dangerous to persons and damaging to components and is therefore not advisable.

MACHINE IDENTIFICATION

Each machine is fitted with an identification plate with the following information:

1. Machine (Part Number)
2. Machine Serial No.
3. Machine Weight

When ordering spares or replacement parts from your local dealer it is important to quote both the Part Number and the Serial Number as stated on the identification plate so the machine and model can be quickly and correctly identified.



Machine Identification Plate

TECHNICAL SPECIFICATIONS

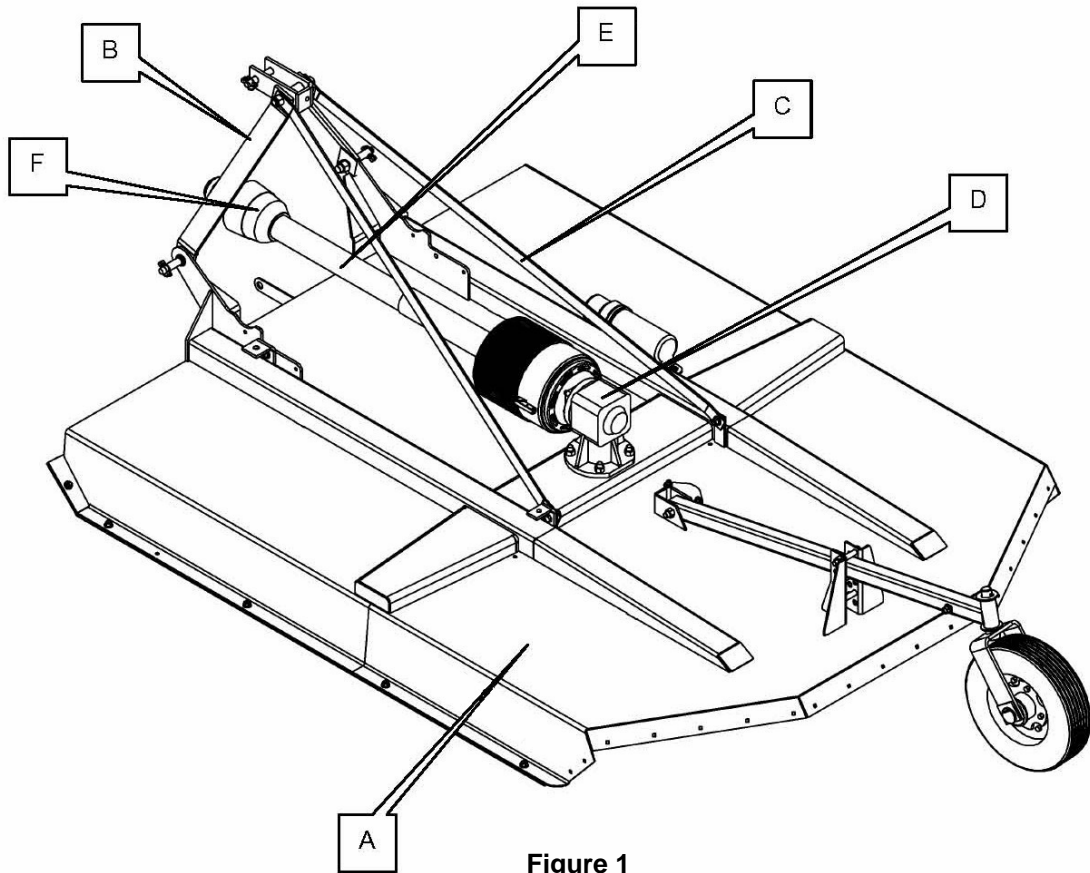
Specifications	SE-5 Model	SE-6 Model	SE-7 Model
Working Width	1.50m (4'9")	1.80m (5'9")	2.10m (6'9")
Transport Width	1.60m (5'2")	1.93m (6'3")	2.23m (7'3")
Length	2.46m (8')	2.69m (8'8")	3.10m (10'2")
Weight	300kg	430kg	470kg
Cutting Height	25-150mm	19-150mm	25-150mm
Cutting Capacity	25mm	25mm	25mm
Power (min.)	20HP	30HP	45HP
Gearbox protection	Slip clutch	Slip clutch	Slip clutch
Guards	Front / Rear	Front / Rear	Front / Rear
Tail Wheel	Laminated	Laminated	Laminated

PTO Type: Independent

PTO Speed: 540 rev/min

PTO Size: 1.3/8" (6 spline)

COMPONENT IDENTIFICATION



- A) DECK
- B) A-FRAME
- C) A-FRAME STAYS
- D) GEARBOX
- E) PTO SHAFT
- F) PTO COVER

SAFETY INFORMATION

General safety rules:

- ▲ Always read and follow the instructions for the use and maintenance of the machine before carrying out any work operations or servicing tasks.
- ▲ Improper use of the machine is both highly dangerous to persons and damaging to the machine components – only use the machine for its designated task.
- ▲ Both operators and the maintenance fitters should be familiar with the machine and fully aware of dangers surrounding improper use or incorrect repairs.
- ▲ Before starting, checks to both tractor and machine must be carried out as regards: functionality, road safety, accident prevention rules.
- ▲ Even when using the machine correctly, stones or other objects may be thrown a long distance. Therefore nobody must stand within the danger area. Special attention must be paid when working near roads or buildings.
- ▲ Use tractor's fitted with safety cabs.
- ▲ The condition of blades and of machine guards must be checked before beginning the daily work - they must be replaced if damaged or missing before you use the machine.
- ▲ During checks or repairs, make sure nobody could start the machine by mistake.
- ▲ Never wear loose or fluttering clothes.
- ▲ Never carry passengers on the tractor.
- ▲ Never carry passengers on the machine.
- ▲ Never connect the power takeoff with the engine running.
- ▲ Never approach the machine until the rotor has completely stopped.
- ▲ Do not enter the working zone of the PTO shaft. It is dangerous to approach the rotating parts of a machine.
- ▲ Keep the PTO shaft guard in good condition.
- ▲ Before starting, check the surrounding area for the likely presence of children and/or animals.
- ▲ Do not stand near the machine when it is operating.
- ▲ The PTO shaft must be assembled and disassembled only with the engine stopped and the starting key removed.
- ▲ Before connecting the power takeoff, check that the speed and the rotational direction correspond to those of the machine.
- ▲ Immediately replace missing or damaged safety decals.
- ▲ Before leaving the tractor with the machine attached, proceed as follows:
 1. Disconnect the power takeoff,
 2. Put the machine steadily on the ground using the tractor's hydraulic lift.
 3. Apply the hand brake and, if the ground is steeply sloping, wedge the tractor.
 4. Remove the starting key.

Transportation Safety

- ▲ In transport, reduce speed, especially on bumpy roads, the weight of the machine may render driving difficult and damage the machine itself.
- ▲ Ensure the levers that operate the hydraulic lift are locked, to avoid the lowering of the machine during transport.
- ▲ When driving on public roads, respect all road rules in force.
- ▲ Never transport the machine with the rotor running, even for short distances.

Operating Safety

- ▲ Pay special attention when working with the machine not to touch fixed objects as this could cause damage to machine components resulting in parts or debris being thrown out of the machine at very high speed.
- ▲ If wires, ropes or chains should become entangled in the rotor stop immediately to prevent damage or dangerous situations; stop the rotor and the tractor, take out the starting key. Put working gloves on; clear the rotor with the aid of pliers or shears. Do not try to disentangle by inverting the rotational direction of the rotor.
- ▲ Do not use the machine when excessive vibration is experienced, as this may cause breakage and serious damage - find the cause of the vibration and eliminate it before using the machine again.

Although the information given here covers a wide range of safety subjects, it is impossible to predict every eventuality that can occur under differing circumstances whilst operating this machine. No advice given here can replace 'good common sense' and 'total awareness' at all times, but will go a long way towards the safe use of your McConnel machine.

SAFETY DECAL IDENTIFICATION

Safety decals are located on various points of the machine. They can be identified by the yellow upper panel depicting the hazard, and the lower white panel indicating means of avoidance or precautions to be taken. These decals have no text. It is essential that all operators and personnel associated with the machine fully understand their meanings, which are shown below. Any safety decals which are found missing should be replaced.



1.



2.



3.



4.



5.



6.



7.



8.



9.



10.

1. **Driveline Missing** - Ensure PTO guard is fitted to the machine before operating.
2. **Read Instructions** - Always fully read and understand the instructions before using the machine.
3. **Keep Nuts Tight** - Ensure all nuts are tight before commencing work with the machine.
4. **Keep Out Zone** - Keep at a safe distance from the machine to avoid being crushed.
5. **Unsupported Machine** - Do not attempt to get underneath the machine because of the risk of fall.
6. **Thrown Debris** - Keep at a safety distance from the machine to avoid the risk of debris being thrown from the machine.
7. **Rotary Head Danger** - Remove the ignition key and read the instructions before working on or getting close to the machine, as the blades may still be rotating.
8. **Shaft Entanglement** - Keep at a safe distance from the machine to avoid being caught in guarding, rotor shaft, or the PTO shaft.
9. **Unblock Rotary Head** - Ensure rotary head has come to a complete stop before attempting to unblock the blades.
10. **Max PTO Speed 540 ACW** - PTO speed not to exceed 540 RPM anti-clockwise.

SAFETY DECAL LOCATIONS

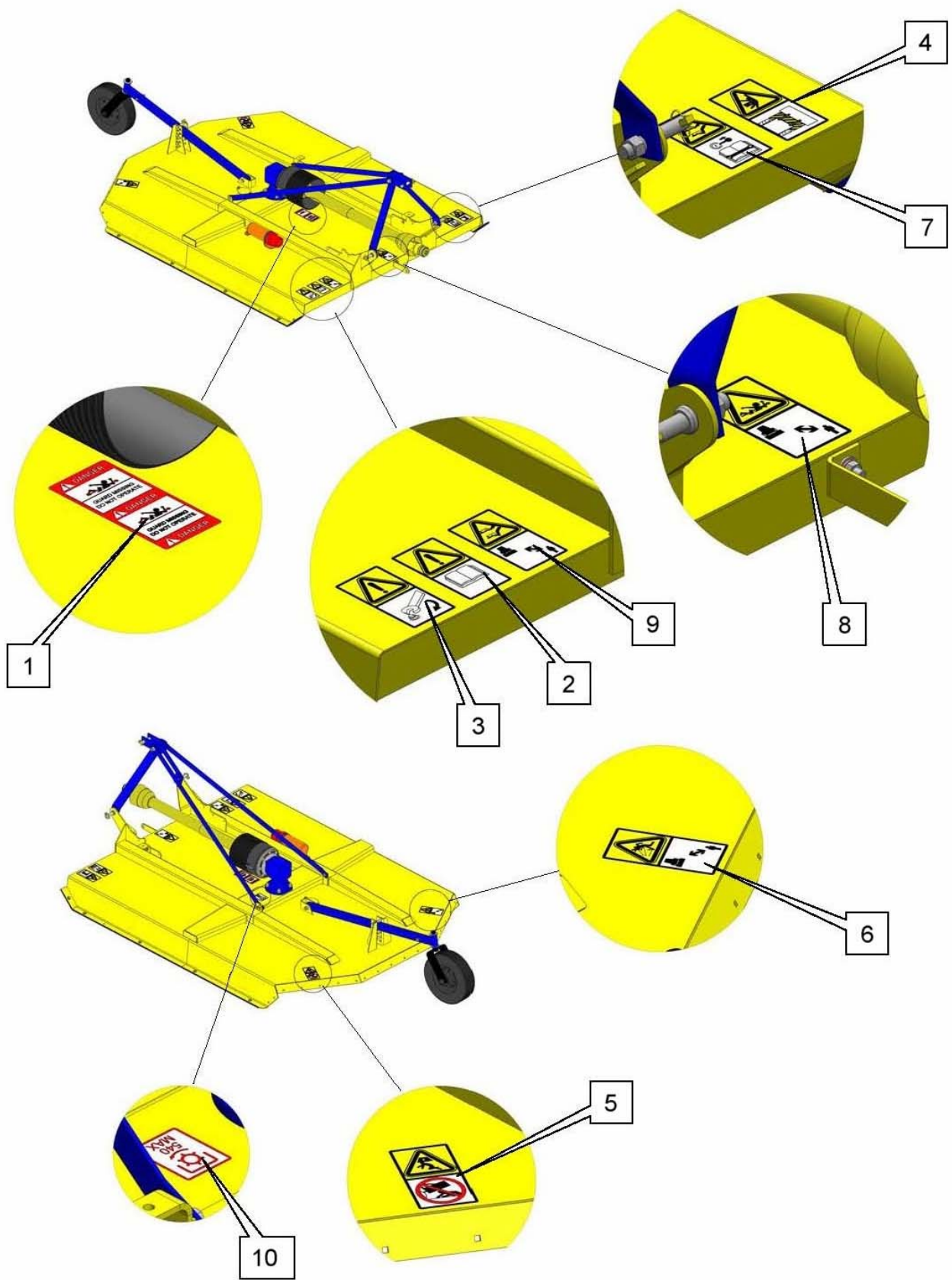


Figure 2

PRE-INSTALLATION

Tractor Requirements

Ensure the specifications of the tractor meet the requirements listed below:

- The PTO is 6 spline of 1.3/8" diameter.
- The PTO output is 540 rev/min.
- The three-point linkage is Category I/II.

Tractor Preparation

- Remove any brackets or objects which may obstruct operation of lift arms.
- Disengage PTO drive and expose PTO drive shaft.

Machine Preparation

Machines will normally be delivered fully assembled, with the exception of certain occasions or export markets where the machine may be partially dismantled for ease of transportation; in these cases minor re-assembly will be required in order to return the machine to a working state – see *below*:

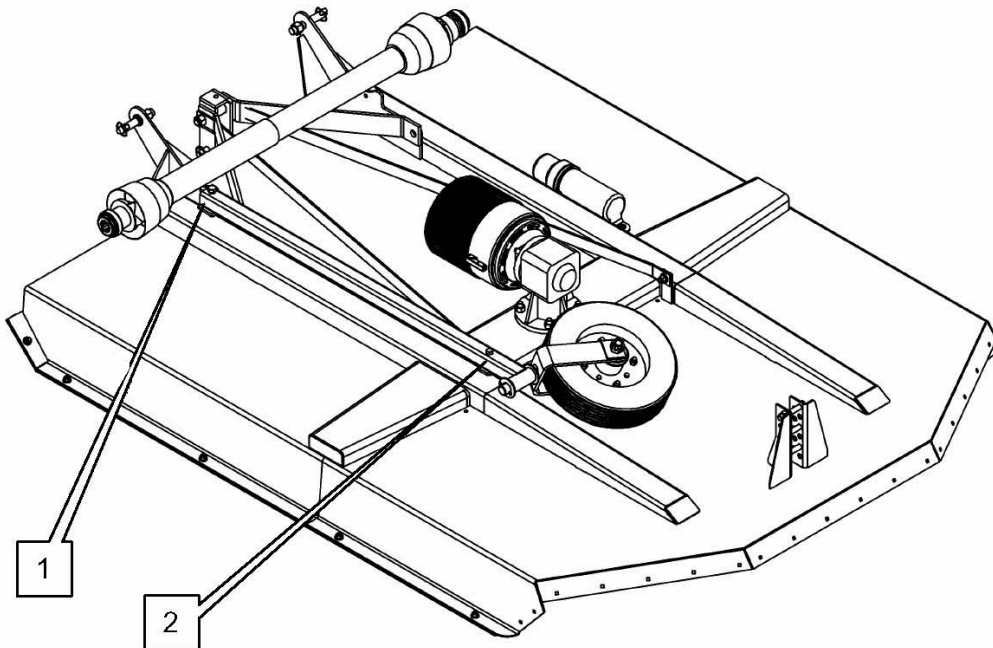


Figure 3

- Unbolt the wheel beam from the two transport brackets securing the wheel beam to the deck at locations indicated (1) & (2) (Fig.3).

- Assemble the wheel beam in its working position on the deck by fastening bolt (1) (Fig.3) to bracket (3) on the deck (Fig.4).

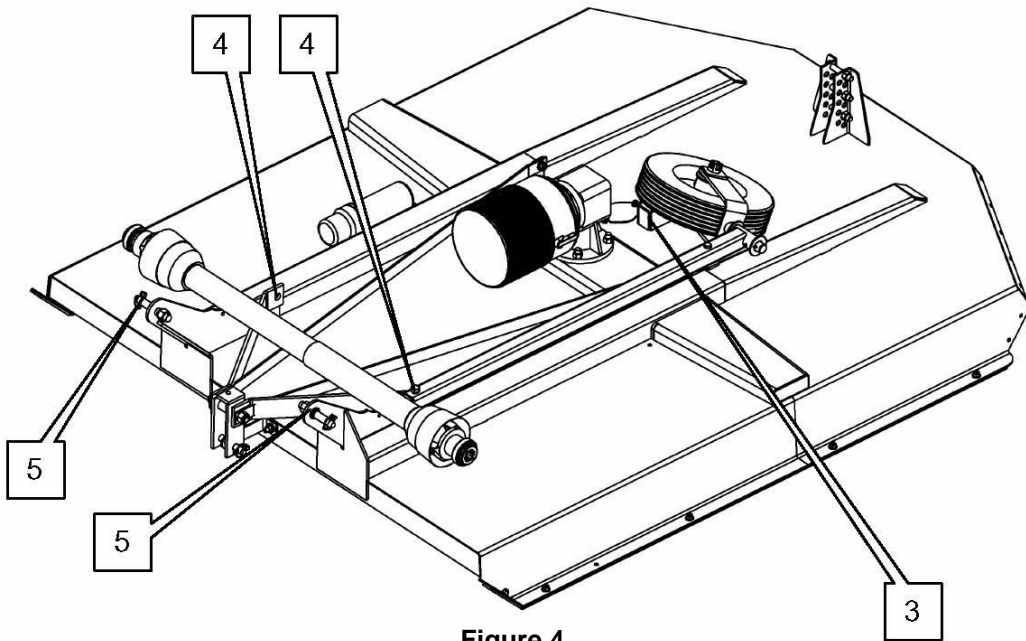


Figure 4

- Fasten nut and bolt (2) (Fig.3) into wheel beam assembly location (6) (Fig.5).

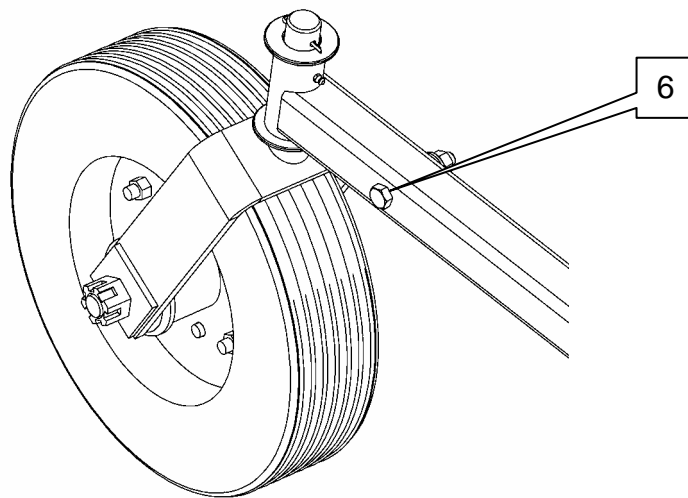


Figure 5

- Unfasten cable ties holding lower links arms in place, positions (4) (Fig.4) and secure lower links in place using lower link pins in positions (5) (Fig.4)
- Ensure all fasteners are securely tightened. The machine is then in its working position.

FITTING MACHINE TO TRACTOR

Attachment of the machine to the tractor should always be performed on a firm level site.

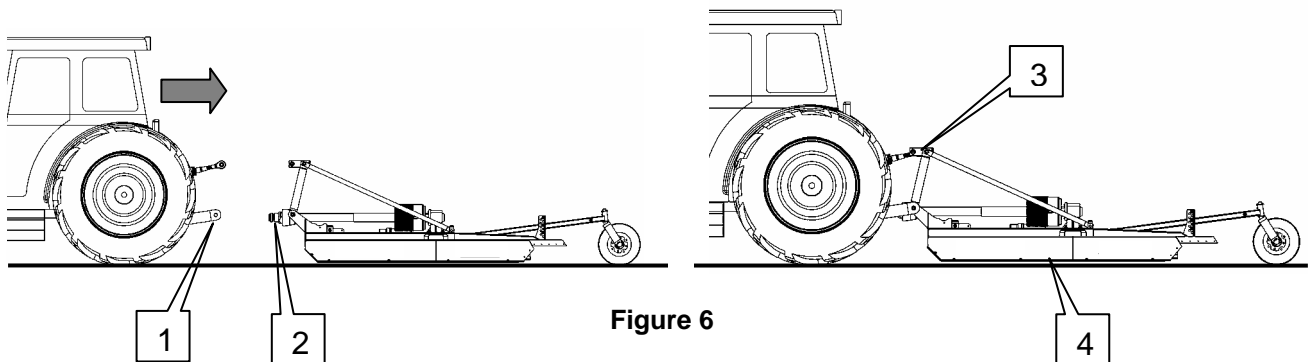


Figure 6

The procedure for fitting the machine to the tractor is as follows:

- Disengage the PTO drive.
- Reverse tractor squarely to the machine (*Fig.6*).
- Gradually reverse tractor until lift arm holes (1) are level with mounting pins (2).
- Fit left lift arm into mounting pin.
- Adjust height of right lift arm if necessary.
- Fit right arm on to the mounting pin then lock with lynch pin.
- Fit top stay of machine to top link on tractor (3), adjusting the length with the machine level on the skids (4)
- Secure with pins provided with tractor.
- Adjust lift arm check chains to prevent machine from swaying when raised.
- Fit PTO shaft – *for first time attachment to a tractor refer to following page for details regarding measurement and cutting of a PTO shaft.*

PTO SHAFT INSTALLATION

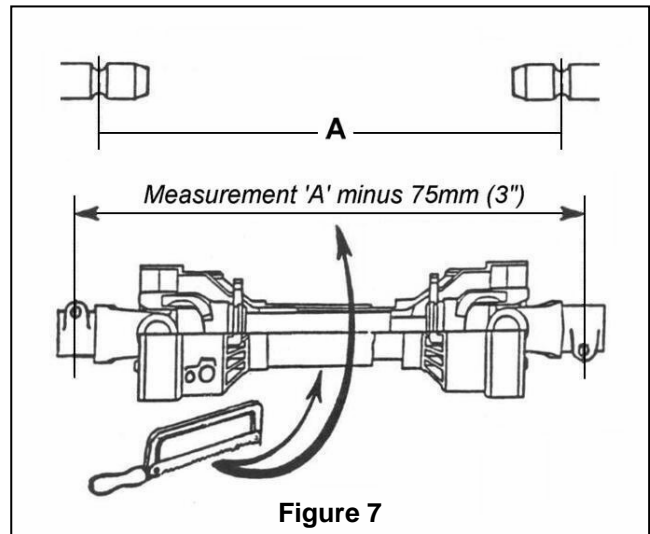
PTO Shaft Measurement

Measure the PTO shaft and cut to the dimension shown (Fig.7) – the finished length of the PTO shaft should be 75mm (3") less than the measured distance 'A' - between tractor shaft and gearbox stub shaft - to enable fitting.

NOTE:

For subsequent use with different tractors measure again, there must be a minimum shaft overlap of 150mm (6").

Fit PTO in position and attach the torque chains to a convenient location to prevent the shaft guards from rotating.



PTO Shaft Length Adjustment

1. Shorten outer plastic tube to 40mm less than the shortest envisaged shaft length as illustrated (Fig.8).
2. Remove the marked tube.
3. Remove same length from inner plastic tube and metal shaft profiles (inner and outer).
4. De-burr all edges and remove 'swarf' to ensure smooth operation.

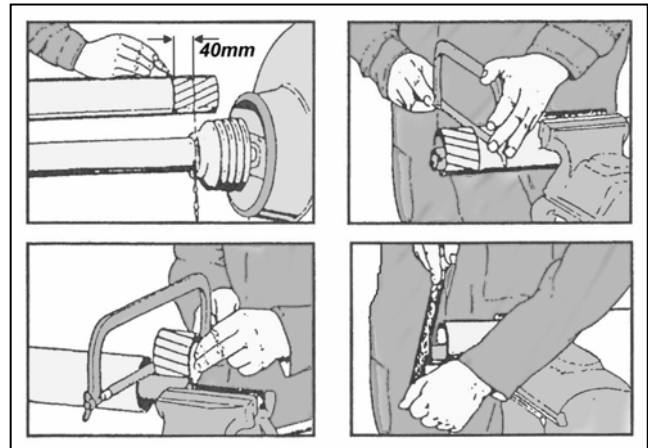


Figure 8

PTO Fitment

- Before fitting PTO shaft to tractor, grease the sliding drive shafts and bearing units.
- Fit PTO to tractor ensuring locking peg on the splined coupling is fully engaged.
- Attach PTO guard torque chains to tractor and machine.

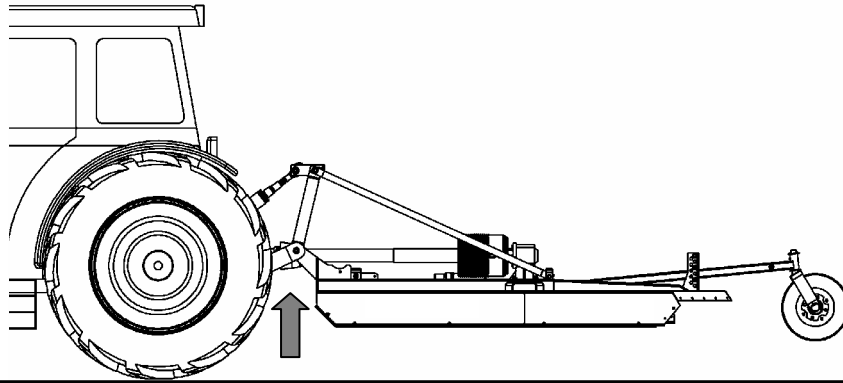
Pre-Operational Checks

Before commencing work with the machine the following checks should be performed:

- Make a visual inspection of the machine to ensure it is in good operational condition.
- Check all safety guarding is in position and in full working order.
- Check for missing or damaged components and replace if required.
- Check all greasing points are well lubricated.
- Check gearbox oil level.
- Check PTO speed and direction match that of the machine.

INITIAL RUN UP

- Raise the machine off ground using tractor hydraulics (*Fig.9*).



- Ensure nobody is standing near to the machine.
- Run tractor engine at idle speed and engage PTO drive.
- When rotor starts increase PTO speed gradually to 540 rev/min.
- If rotor fails to start stop tractor engine and check PTO drive.
- Allow the machine to run for approximately ten minutes.

Stop the machine immediately if excessive noise is heard or vibration is felt, and refer to section on 'Maintenance'.

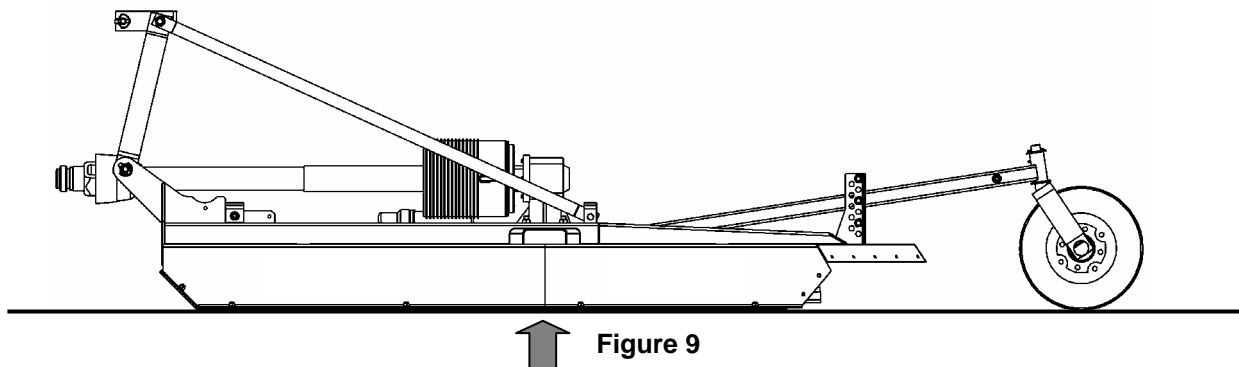
Pre-Work Lubrication Checks

Gearbox: The gearbox is filled with semi-fluid grease prior to leaving the factory, but it is advisable to check the level before putting the machine to work, this is performed by removal of the level plug situated on the rear of the gearbox. Warm the gearbox up before filling to the correct level with EP90 lubricant.

Grease Points: All grease points should be greased before operating the machine – *refer to maintenance section for details.*

Parking

When parking or storing the machine it should always be placed on firm level ground for protection of the machine and safety to persons.



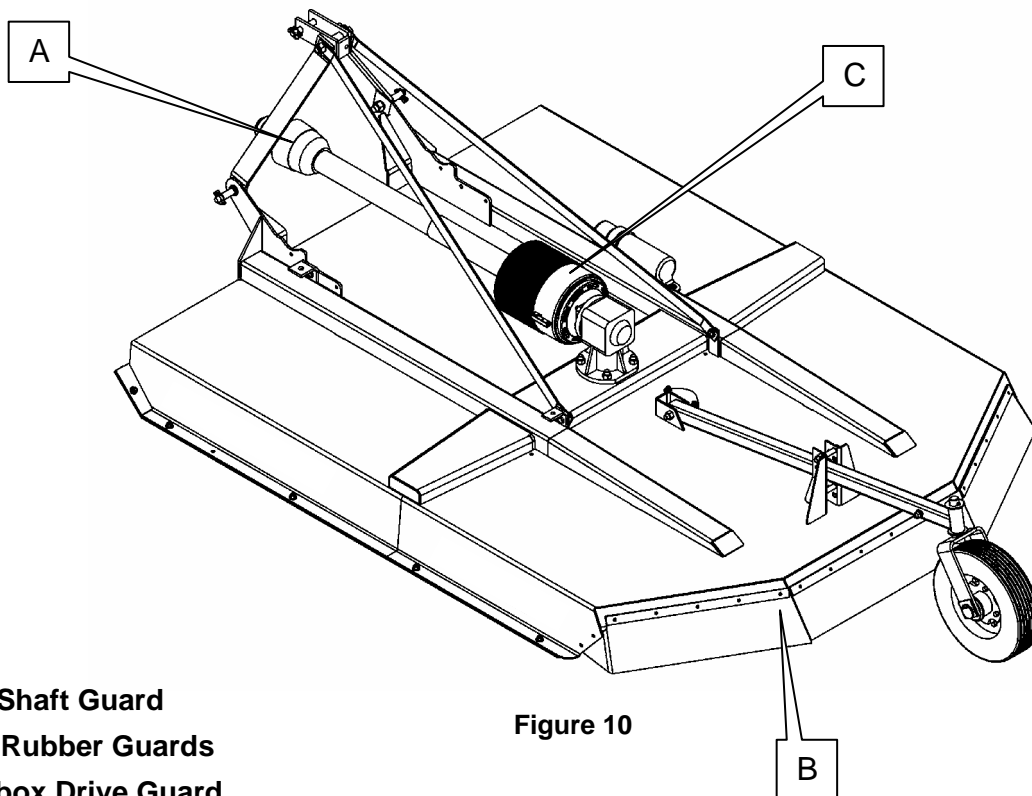
Safety Guards

It is vital that in the interests of safety all guards (*Fig. 10*) must be kept in position on both the machine and the tractor whenever the machine is running or operating.

The manufacturer disclaims all responsibility for damage or injury arising as a result of machine guards being removed, altered, or the use of guards other than those provided by the manufacturer being fitted to the machine.

ALWAYS: Check that all guards are fitted correctly and are in good working condition.

ALWAYS: Inspect guards frequently and replace any guards that have wear or damage which is likely to impair their operation.



- A. PTO Shaft Guard
- B. Rear Rubber Guards
- C. Gearbox Drive Guard

Figure 10

TRANSPORT

Normally the machine will need to be driven to the work site. To put machine into the transport position follow the instructions stated below:

- Raise machine from the ground using tractor hydraulics.
- Lock in raised position.
- Do not transport with PTO speed drive engaged.

GENERAL OPERATION

Initial Checks

Check that the tractor is equipped to deliver 540 rev/min at the power take-off shaft.
UNDER NO CIRCUMSTANCES MUST THE PTO EXCEED 600 REV/MIN.

Normal Pre-Start Checks

- Check that the rotor is free from obstructions, especially pieces of wire.
- Check that all blades are in good condition and securely attached.
- Check that all guards are in position and that they are in good condition.
- Examine the job to be cut. It is very important that the work site is inspected before cutting and all hidden obstructions removed or their positions marked so that they can be avoided.
- Check for wire, hidden stakes, drain pipes, large stones, etc. and remove or mark their location.

Normal Run Up

- With a new machine never start cutting in arduous conditions, allow for at least one day's light work for running-in.
- Never attempt to start the machine while it is under load at any time. Always free rotor shaft from any obstructions.
- Never increase or decrease PTO speed rapidly as this can lead to gearbox damage.
- Never engage PTO at full 540 PTO speed.
- Disengage the PTO when lifting the machine at headlands.



WARNING!

Stop the machine immediately if excessive noise is detected from the rotor or gearbox and investigate the cause – ensure the machine has stopped fully, the tractor engine switched off and the key removed before approaching the machine. Do not use the machine again until the problem has been rectified.

Operating Hints

- Keep PTO speed at 540-550 rev/min to maintain rotor shaft speed.
- AVOID wire. **Stop the tractor engine immediately** if an unusual noise is heard from the machine. On no account raise or move the cutting unit until the rotor has stopped. **Never under any circumstances** run the rotor 'to clear' itself.
- AVOID stumps and pipes etc. Stalling in heavy growth may cause damage to the rotor.
- DO NOT allow personnel near the machine while it is operating.
- AVOID rushing into material when operating.
- AVOID taking in too much material by selecting an appropriate forward speed.

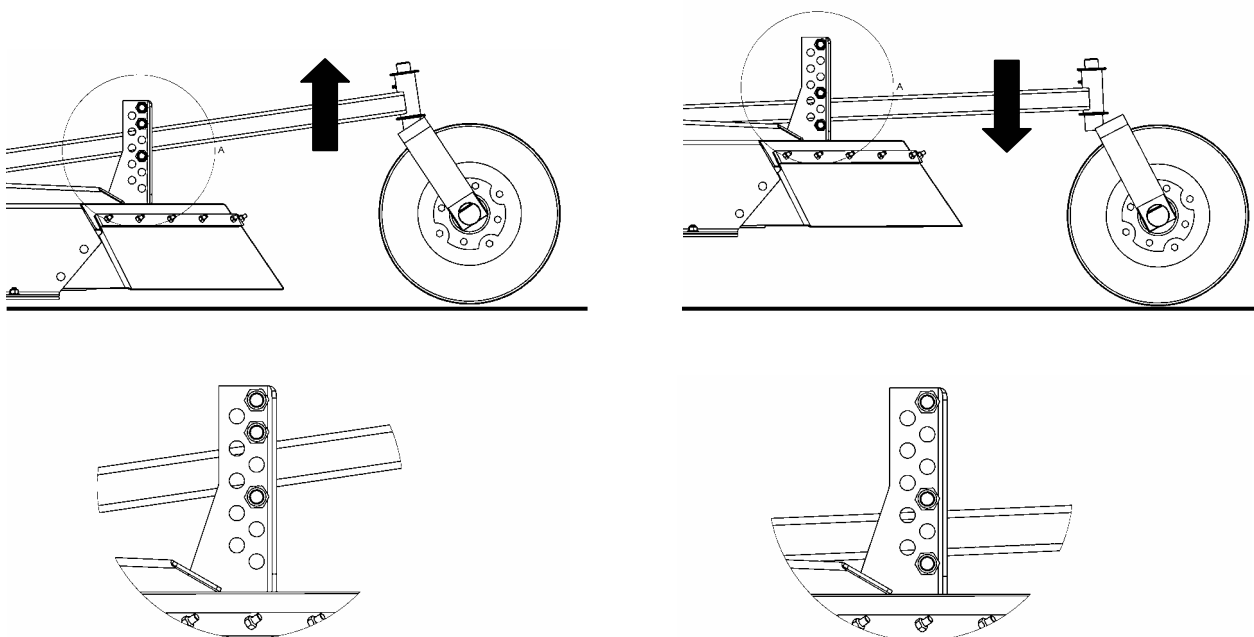
Stalling the Rotor

If the rotor does become choked the tractor will stall or the PTO clutch will slip. If this should occur follow the instructions below:

- Stop forward motion, disengage PTO drive immediately and place PTO drive lever in neutral.
- Lift the machine using tractor hydraulics.
- Stop the tractor engine.
- Remove any obstructions that may be present on the rotor. If working under the raised machine ensure that it is safely supported.
- **Never under any circumstances** run the rotor 'to clear' itself.

Cutting Height

The height of cut can be adjusted by altering the position of the castor wheel arm within the multi-position clevis on the main deck (Fig.11).



MAINTENANCE

Power Takeoff Shaft (PTO)

The PTO shaft used is of the normal agricultural type. Spares kits, comprising the spider, needle bearings, circlips etc., are generally available from most agricultural dealers. For correct part numbers refer to the parts manual for the specific machine.

Some routine maintenance is needed to ensure a trouble free life for the PTO shaft. For best results follow instructions below:

- Regularly grease the PTO shaft sliding tubes.
- Grease both ends of PTO shaft on a daily basis during use.
- Ensure PTO guard torque chains are securely attached and in good condition.
- Check that PTO guard is in good condition – replace immediately if damaged.
- Check universal joint bearing journals for roughness or slack - replace if necessary.

Slip Clutch – Compression Spring Type (Early Models)

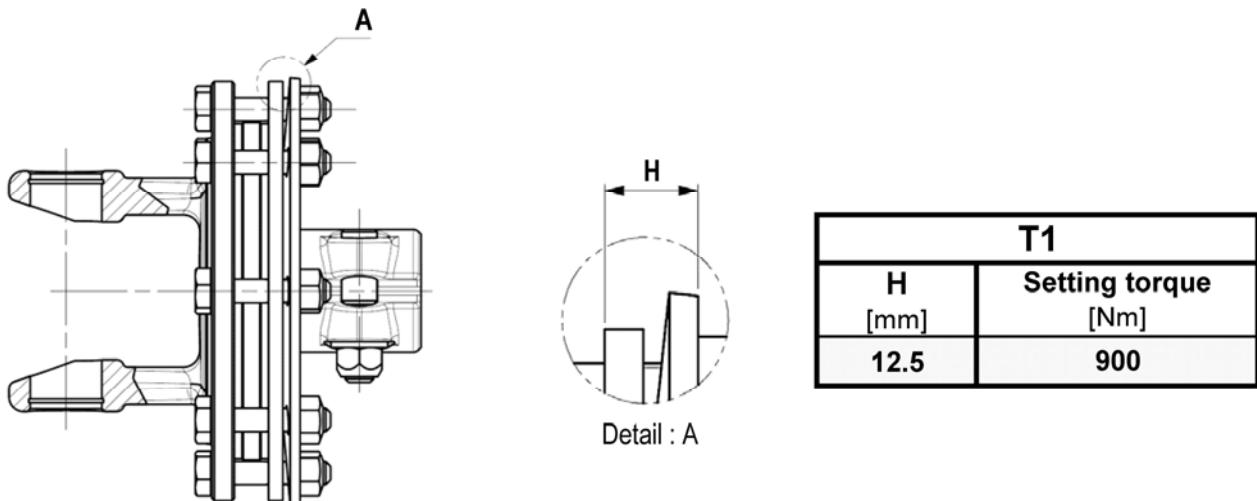
A slip clutch is incorporated in the PTO driveline. It is designed to slip, absorb the shock load, and protect the driveline.

Clutch torque setting is factory set. If the clutch slips excessively the friction discs should be checked for excessive wear. Discs are 1/8" thick when new - replace after 1/32" wear.

If the slip clutch has a compression spring check length of springs as assembled on clutch; the length should be 1.5/16" - if not adjust length of bolt to obtain the correct spring length. If additional adjustment is required tighten each bolt 1/2 turn.

NOTE: Do not tighten spring bolts over 1/2 turn at any adjustment - excessive tightening can cause clutch to become frozen and not slip which could cause damage to tractor PTO, drivelines or gearbox. Clutches that have not been used for 30 days should be slacked off, run for a second and re-tightened to above settings.

Slip Clutch Setting – Non-Compression Spring Type (Current Models)



Lubrication

The lubrication chart below states the frequency at which grease points should be lubricated:

Grease Point	Frequency
PTO Shaft Bearings	Weekly
PTO Shaft Tubes	Weekly
Castor Wheel	Weekly

Do not over grease, this can cause overheating and damage bearing seals.

Rotors

Vibration of the rotor can cause premature failure of the rotor shaft bearings as well as structural failures. It is vital that the machine **is not** operated with the rotor vibrating - if any vibration is detected stop operating the machine immediately and carry out the checks listed below:

- Stop tractor engine, neutralise PTO drive and remove the starting key.
- Check for missing or damaged blades - replace any missing components immediately.
- Check and ensure that all blade attachments are tight. If any blade components are missing or loose and have been replaced and tightened, run the rotor and test for signs of vibration - if vibration is still present, check as follows:
- Stop tractor engine, neutralise PTO drive and remove the starting key.
- Check rotor gearbox bearings for roughness or signs of slackness.
- Replace bearings which suffer the above symptoms. If vibration persists it is an indication that the rotor is probably bent and must therefore be replaced before using the machine again.

MACHINE REMOVAL & STORAGE

In the parking position the machine rests on the skids at both sides. To put the machine in this position the following procedure is necessary:

- Remove the bolt from the height adjusting clevis on the main deck to allow the castor arm to swing up.
- Lower the machine to the ground using the tractor hydraulics.
- Stop tractor engine and disengage PTO drive.
- Slacken lift arm and check chains.
- Remove top link.
- Remove lynch pin and rings securing lift arms to mounting pins.
- Remove mounting pins from mounting clevis and lift arms.
- Grease mounting pins.
- Replace lynch pins.
- Release tractor end of PTO shaft and pull back along splines.
- Start tractor engine and drive carefully forward.
- Grease spline and tubes of PTO and store with the machine or keep in a safe dry place.

Machine Storage

Before removing the machine from the tractor a thorough check of the machine and its components should be made. Follow instructions below.

- Thoroughly clean all moving parts, particularly the rotors.
- Check that all blades are in place and that they are in good condition.
- Smear all unpainted metal parts with grease and lubricate all grease nipples.
- Make a note of any item that needs replacing so that parts can be ordered.

Disposal

At the end of the machines working life all the parts that may cause danger have to be made inert. The materials forming the machine have to undergo a differentiated division, these materials are:

- ▲ Steel (Deck, 'A' Frame, Blades etc.)
- ▲ Mineral Oil (within Gearbox)
- ▲ Rubber (Rear Guarding)
- ▲ Plastic (PTO Guarding)

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

TROUBLESHOOTING

Troubleshooting Chart

Problem	Suggested Cause	Remedy
Irregular Cut	<i>Worn, bent or broken blades. Machine is not level with the ground. Material blockage due to speed.</i>	<i>Replace item(s). Level the machine. Reduce working speed.</i>
Machine Noise	<i>Loose bolts. Cracks or initiation of cracks in deck.</i>	<i>Tighten Bolts. Have it repaired in specialised workshop.</i>
Gearbox noise	<i>Lack of oil. Worn bearings. Worn gears.</i>	<i>Fill to level. Replace. Replace.</i>
Vibration	<i>Broken or worn blades. Unbalanced rotor.</i>	<i>Replace. Replace in authorised workshop.</i>
Premature blade wear	<i>Blades contacting the ground.</i>	<i>Adjust the height of cut.</i>
Excessive backlash in joints	<i>Worn pins</i>	<i>Replace</i>



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