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# E-SWINGTRIM

## Swingover Cutterbar Trimmer



Operation 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](http://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 McConnell 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. McConnell 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 McConnell 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 McConnell 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 McConnell 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 McConnell 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 McConnell Ltd Service Dealer, within 30 days of the date of repair.*
- 2.05. *Following examination of the claim and parts, McConnell Ltd will pay, at their discretion, for any valid claim the invoiced cost of any parts supplied by McConnell 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 McConnell Ltd. is final.*

## **3. LIMITATION OF LIABILITY**

- 3.01. *McConnell 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. *McConnell Ltd makes no warranty as to the design, capability, capacity or suitability for use of the goods.*
- 3.03. *Except as provided herein, McConnell 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 indirect, 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.*

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*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 Cutterbar Mower*

Product Code; *SWTR*

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.

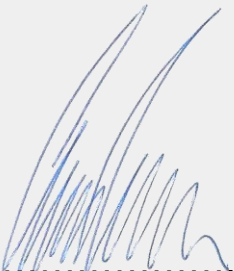
McCONNEL LIMITED operates an ISO 9001:2008 quality management system, certificate number: FM25970.

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*

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## GENERAL INFORMATION

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Read this manual before fitting or operating the machine or accessory. Whenever any doubt exists contact your local dealer or the McConnell Service Department for assistance.

**Only use 'Genuine McConnell Parts' on McConnell machinery and equipment.**

DEFINITIONS: *The following definitions apply throughout this manual;*

### **⚠ DANGER**

**DANGER:** Alerts to a hazardous situation which will result in death or serious injury if not observed carefully.

### **⚠ WARNING**

**WARNING:** Alerts to a hazardous situation which could result in death or serious injury if not observed carefully.

### **⚠ CAUTION**

**CAUTION:** Alerts to a hazardous situation which could result in damage to the machine and/or equipment if not observed carefully.

### **NOTICE**

**NOTICE:** Specific or general information considered important or useful to emphasise.

**LEFT HAND (LH) & RIGHT HAND (RH):** *These terms are applicable to the machine when fitted to the tractor and viewed from the rear; these terms also apply to tractor references.*

### **SERIAL PLATE**

*All machines are equipped with a serial number plate containing important information relating to the machine including a unique serial number used for identification purposes.*

*Note: Images in this manual are provided for instruction and informational purposes only and may not show components in their entirety. In certain instances images may appear different to the actual machine; where this occurs the general procedure will be basically the same. E&OE.*

## **MACHINE & DEALER INFORMATION**

Record the serial number of your machine on this page and always quote it when ordering parts. Whenever information concerning the machine is requested remember to also state the make and model of tractor to which the machine is fitted.	
Machine Serial Number:	Installation Date:
Machine Model Details:	
Dealer Name & Branch:	
Dealer Address:	
Dealer Telephone No:	
Dealer Email Address:	

## SAFETY INFORMATION

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There are obvious and hidden potential hazards involved in the operation of this implement. Serious injury or death may occur unless care is taken to insure the safety of both the operator and any other persons in the area. **KEEP CLEAR AT ALL TIMES**

**The following is a list of some safeguards which should be followed. Serious injury or death may occur unless care is taken.**

- ▲ Where this is used as a rear-mounted implement it will remove weight from the front wheels – this can result in less of steerage and risk of overturn. Add front end weight to ensure 20% of tractor original weight is on the front wheels when the boom is in transport position. This will aid steering safety reducing the risk of bodily injury.
- ▲ Always transport slowly on rough surface to prevent 'bouncing' of the front wheels causing loss of steerage and possible injury.
- ▲ Always set tractor wheel width as wide as possible and add weights to the relevant opposite wheel to counteract the weight of an extended implement.
- ▲ Operate the machine only with a tractor equipped with an approved roll-over-protection system (ROPS). Always wear approved seat belts whenever the tractor or machine is running. Serious injury or death could result from falling off the tractor seat. Do not alter the ROPS structure.
- ▲ Always ensure that check chains/stabilizers are fitted and are in good condition and tight.
- ▲ The operator and all support personnel should wear 'Safety Shoes', 'Hard Hats', and 'Safety Glasses' at all times to protect them against falling objects.
- ▲ Never allow inexperienced or untrained personnel to operate the tractor/cutterbar combination without training or supervision.
- ▲ Always familiarise yourself with the controls in a clear safe area before commencing work.
- ▲ Always familiarise yourself with the local highway regulations and abide by them at all times.
- ▲ The boom and cutter head change the balance of the machine in transport. Be especially careful when transporting on slopes. Never turn uphill in transport except at very slow speed and a low rate of turn. Never transport or operate this machine on steep slopes. **BE CAREFUL.**
- ▲ Always inspect the work area or hedgerow for wire, steel posts, or other dangerous materials and remove them if possible before commencing work.
- ▲ When the cutter head is swung to the side (working position) of the tractor, it exerts a momentum on the tractor causing the tractor to rock from side-to-side. Extreme Care should be taken when operating on slopes, Bodily Harm or Death could result from tractor's tipping over.
- ▲ Never swing the arms of the machine over if the tractor is facing sideways, across or facing down a slope. If swinging over on sloping ground is unavoidable the tractor must always face directly up the slope.
- ▲ Never allow riders on the tractor. Never lift a person with the boom or cutterhead. **KEEP BYSTANDERS CLEAR.**

- ▲ Inspect the entire machine periodically. Look for loose bolts and worn or broken parts. Make sure all pins are secure: Serious injury may occur from not maintaining this machine in good working order.
- ▲ Do not mount tractor when tractor is moving. Avoid serious injury or death from contact with the rotating tyres. Mount and dismount the tractor only when it is completely stopped, do not grasp the control levers when mounting or dismounting the tractor.
- ▲ Always take extreme care when working around overhead obstructions. When working close to overhead power lines consult your electric company for a safe code of operation.
- ▲ The boom is designed only to position the cutterhead which is attached to it. Never attempt to lift, pull, or push other objects with it. Serious injury could result from a structural failure when the boom is used for purposes other than those for which it was designed.
- ▲ The boom on this machine has a safety 'breakback' system with automatic return to the work position, never allow anyone to stand in front of the boom or cutterhead in a position where they could be injured if the boom were to move forward suddenly.
- ▲ Always at all times keep fingers away from the cutter knife as it can be operated by a movement of the crankshaft fly wheel caused by gravity even though the tractor engine is switched off. When clearing any blockage always lay the cutterbar flat on the ground, switch off the tractor, clamp the cutter knife firmly and remove the blockage using a suitable tool.
- ▲ Never become complacent and ignore any safety instructions. Always check all nuts, bolts, hoses and other fixings daily for tightness, security and damage. Repair immediately if require Always transport the machine in the recommended position (see instructions in transport section) with the cutterbar guard in position.
- ▲ Never walk or work under any raised boom or cutterhead. The boom could fall and cause serious bodily injury or death. Always lower the boom and cutterhead flat on the ground or support the boom and cutterhead on safety stands. Set the cutter head on the ground, then kill the tractor engine.
- ▲ Do not work under raised boom or cutterhead unless components are securely blocked up to prevent inadvertent dropping.
- ▲ Always read carefully and comply fully with the manufacturer's instructions when handling oil, solvents, cleansers and any other chemical agents.
- ▲ Always maintain the safety decals in good readable condition. If the decals become damaged or unreadable, reorder them immediately.
- ▲ In addition to the design and configuration of this implement, including safety signs and safety 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 the machine. Refer also to safety messages and operation instruction in each of the appropriate sections of the tractor and machine manuals. Pay close attention to the safety signs affixed to the tractor and machine.

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**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 it will go a long way towards the safe use of your McConnel machine.**

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## TRACTOR REQUIREMENTS

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Swingtrim machines are specifically designed to be fitted to all tractors with category 1 linkage facility and a minimum weight (*inclusive of ballast*) to manufacturer's specifications of 650 kg (*1430 lbs*).

### **Check Chains & Stabiliser Bars**

Check chains and/or stabiliser bars must be available to hold the machine firmly in position during transport and operation.

### **Stability**

Irrespective of the size of the tractor it must be stable during transport and operation of the machine at all times under all conditions. Due regard must be paid to operating on slopes - front end ballast and rear wheel weights should be added as appropriate to counterbalance overhang of the Cutterbar – *refer to vehicle/tractor preparation page for further information on this subject.*

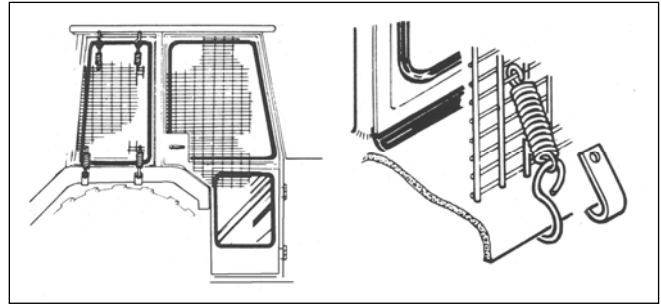
## VEHICLE / TRACTOR PREPARATION

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We recommend vehicles are fitted with cabs using 'safety glass' windows and protective guarding when used with our machines.

Fit Operator Guard (*Part No. 7313324*) using the hooks provided. Shape the mesh to cover all vulnerable areas.

Remember the driver must be looking through mesh and/or polycarbonate



glazing when viewing the cutterhead in any working position - unless the vehicle/ cab manufacturer can demonstrate that the penetration resistance is equivalent to, or higher than, that provided by mesh/polycarbonate glazing. If the tractor has a roll bar only, a frame must be made to carry both mesh and polycarbonate glazing. The operator should also use personal protective equipment to reduce the risk of serious injury such as; eye protection (mesh visor to EN1731 or safety glasses to EN166), hearing protection to EN352, safety helmet to EN297, gloves, filter mask and high visibility clothing.

### Vehicle Ballast

It is imperative when attaching 'third-party' equipment to a vehicle that the maximum possible stability of the machine and vehicle combination is achieved – this can be accomplished by the utilisation of 'ballast' in order to counter-balance the additional equipment added.

Front weights may be required for rear mounted machines to place 15% of total outfit weight on the front axle for stable transport on the road and to reduce 'crabbing' due to the drag of the cutting unit when working on the ground.

Rear weights may be required to maintain a reasonable amount of rear axle load on the opposite wheel from the arms when in work; for normal off-ground work i.e. hedge cutting this should be 20% of rear axle weight or more for adequate control, and for ground work i.e. verge mowing with experienced operators, this can be reduced to 10%.

All factors must be addressed in order to match the type and nature of the equipment added to the circumstances under which it will be used.

### Factors that effect stability

- *Centre of gravity of the tractor/machine combination.*
- *Geometric conditions, e.g. position of the cutting head and ballast.*
- *Weight, track width and wheelbase of the tractor.*
- *Acceleration, braking, turning and the relative position of the cutting head during these operations.*
- *Ground conditions, e.g. slope, grip, load capability of the soil/surface.*
- *Rigidity of implement mounting.*

### Suggestions to increase stability

- *Increasing rear wheel track; a vehicle with a wider wheel track is more stable.*
- *Ballasting the wheel; it is preferable to use external weights but liquid can be added to around 75% of the tyre volume – water with anti-freeze or the heavier Calcium Chloride alternative can be used.*
- *Addition of weights – care should be taken in selecting the location of the weights to ensure they are added to a position that offers the greatest advantage.*
- *Front axle locking, check with tractor manufacturer.*

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The advice above is offered as a guide for stability only and is not a guide to vehicle strength. It is therefore recommended that you consult your vehicle manufacturer or local dealer to obtain specific advice on this subject, additionally advice should be sought from a tyre specialist with regard to tyre pressures and ratings suitable for the type and nature of the machine you intend to fit.

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## FITTING THE MACHINE

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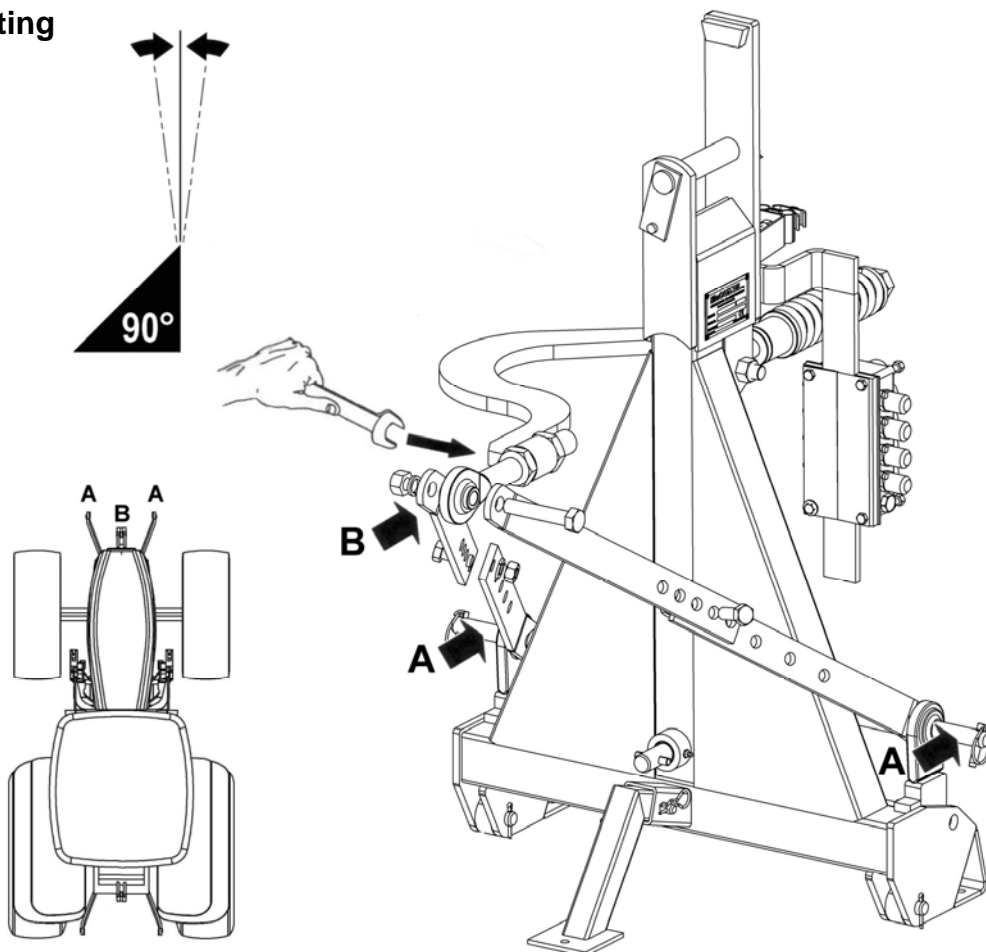
### Attachment to Tractor

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

The procedure for attachment is as follows:

- Unbolt the upper halves of the yoke and fit them either side of the tractors top hitch bracket with the  $\frac{3}{4}$ " UNF nut and bolt provided. *If the tractor has only one top hitch position the bolt will replace the existing top hitch pin.* If more than one location is available mount the yokes through an alternative position as it will make it easier to put the machine on and off the tractor. *Do not tighten the nut at this stage.*
- Attach the machine to the three point linkage and raise it to give 200 - 250mm (8" – 9") clearance under the lowest part of the frame.
- Re-bolt the yoke halves together - *it may be necessary to raise or lower the machine on the linkage to achieve hole alignment.*
- Adjust the top link until the main frame is vertical.
- Tighten the nut and bolt securing the upper yoke just enough to eliminate any sideways movement. *Do not over tighten and 'squeeze' the top hitch brackets.*
- Tighten the check chains/stabiliser bars.
- Bolt controls mounting bracket to suitable location on the tractor.
- Turn the parking leg upside down and pin in position.

### Front Mounting



## MACHINE REMOVAL

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Removal of the machine from the tractor should always be performed on a firm level site.

### Removal Procedure

- Replace the stand leg in the park position with foot down.
- Position the arms so that the motor is level with the bottom of the frame.
- Raise the tractor linkage to take the weight off the yoke. Where a common top link and yoke position is used the yoke must be unbolted in the middle. If different top link location are used the yoke may be unbolted at the top.
- Lower the machine to the ground and disconnect the three point linkage. Remove top halves of the yoke if still attached to tractor.
- Remove control unit from the tractor.

### Storage

Ideally, storage of the machine should be in clean dry location where the machine is protected from the elements.

If the machine is to be left standing for an extended period of time lightly coat the exposed portions of the ram rods with grease. *Note: the grease should be removed and the ram rods wiped clean before the rams are next moved as it will, over a period of time, become contaminated with dust and grit.*

Liberal grease the cutterbar and replace the finger and knife guard. Remember to take care and keep fingers away from the knife.

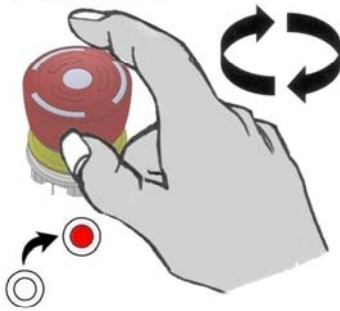
If the machine is to be stored outside tie a piece of tarpaulin or canvas over the control valve and control unit to protect them from risk of water damage - *do not use plastic bags as these will promote rapid corrosion of components.*

As these particular machines are often mounted onto vehicles that do not have a cab it is recommended that, whenever possible, the operator controls be removed from the machine and stored indoors in a clean dry environment as the controls are not waterproof.

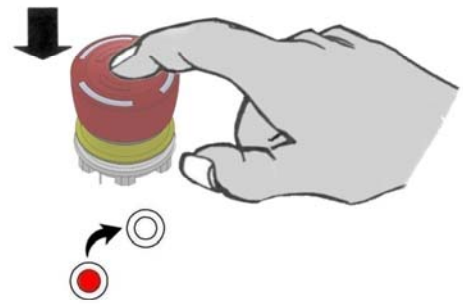


# OPERATION (MINI MOTION CONTROLS)

## Power ON



## Power OFF / EMERGENCY STOP



## Arm Operation

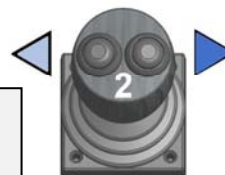
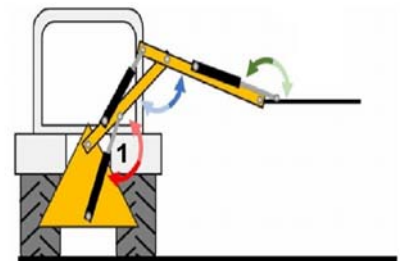
Operational functions are controlled by a single joystick. With the power ON, forward and rearward operation of the joystick controls 'Lift Down' and 'Lift Up' respectively whilst sideways operation controls 'Reach In' and 'Reach Out'; *the particular sideways direction will depend on which side of the tractor the machine is working at the time*. Angle function is controlled by rotation of the top of the joystick.

## Joystick Functions

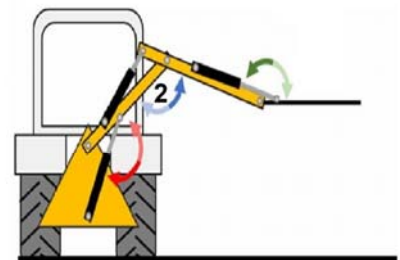
1. ↑ Lift Down and ↓ Lift Up.
2. ⇐ Reach Out and ⇒ Reach In.
3. C/W - Angle C/W and A-C/W Angle A-C/W.



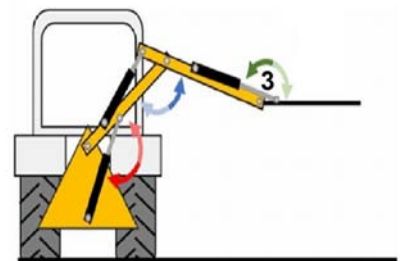
Lift



Reach



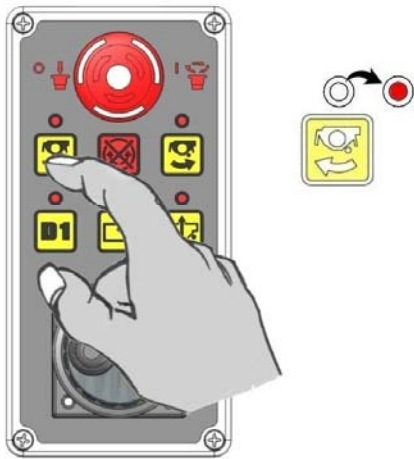
Angle



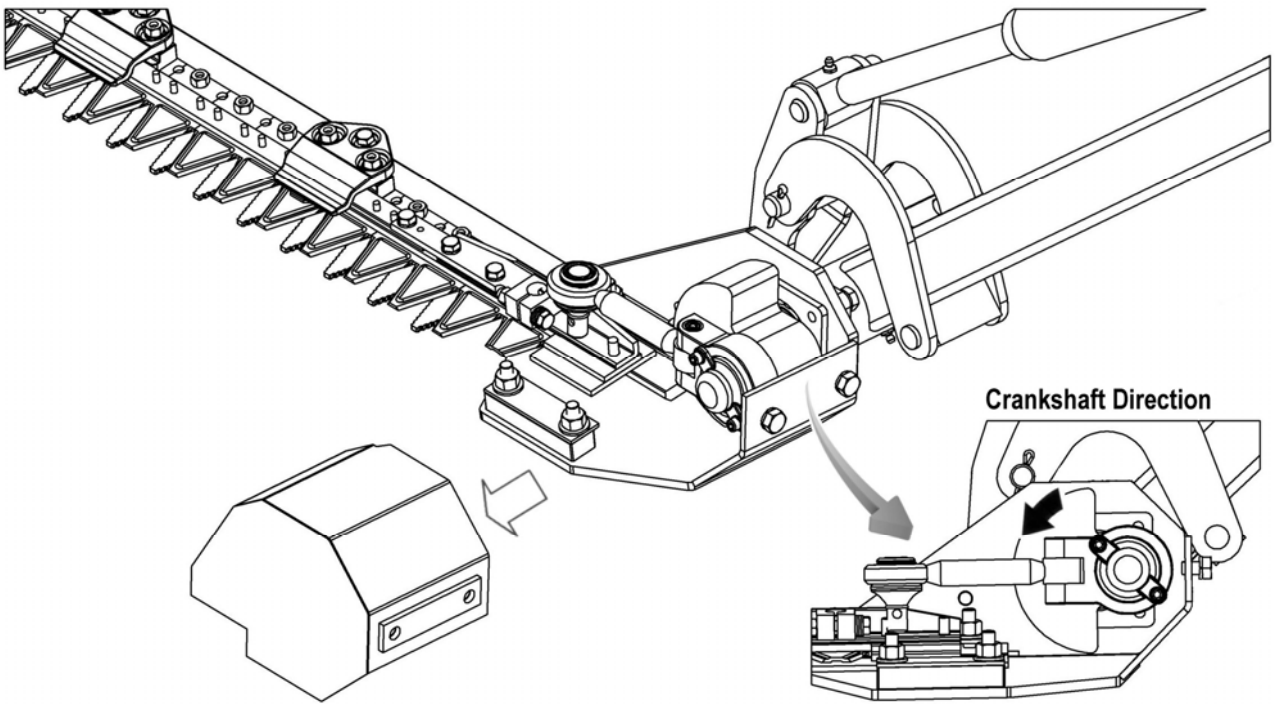
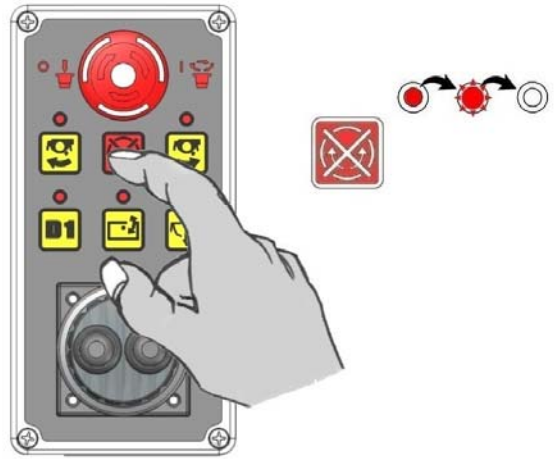
## CAUTION

Before commencing work it is advisable to find an unobstructed level site and operate the machine through its entire range of movements to familiarise yourself with the controls and the machines response to them. This is a wise precaution for all operators and a must for the inexperienced.

## START Cutterbar

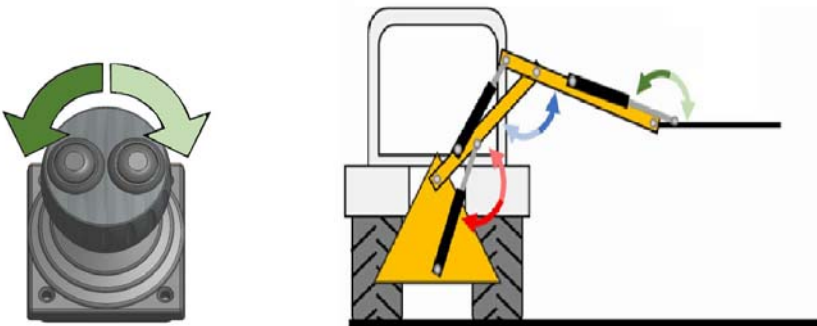


## STOP Cutterbar



## Automatic Angle Control

Position cutterbar at the desired cutting angle.



Press button **D1**

Cutting angle will be maintained providing it is within the scope of the machine geometry. The angle of cut will be maintained even if the angle of the vehicle changes.



## Performance and Working Geometry

The swingtrim's 'swingover' feature allows it to be operated on both sides of the tractor without any re-building or operator adjustments. However, to achieve the best cutting action the cutterbar mounting is designed to pitch the knife downwards at eight degrees. This is maintained throughout the operating range except when the cutterbar is pointing upwards during operations on the left hand side. In these positions the knife has to operate with its back to the hedge and therefore some deterioration in the quality of cut can be expected. If it is necessary to carry out a considerable amount of work in these positions the topping performance can be improved by shortening the top link, this will tilt the machine forward thus altering the approach angle of the cutterbar.

The geometry also results in considerably less reach being available for ground cutting on the left hand side.

In addition, be aware that the geometry, depending on the length of draft links and the size of the tractor's wheels may allow the cutterbar to foul the tractor tyres; therefore extra care should be taken when positioning the cutterbar for 'close in' ground cuts. Also check carefully that there is clearance between the arms and the tractor's roll bar/cab before executing the 'swing over' manoeuvre,

The operation of the arms takes priority on the oil flow and may cause the knife to slow down during arm movements. When cutting material which nears the limit of the machines capability avoid adjusting the arm whilst cutting to reduce the likelihood of stalling the knife.

## Swingover Prevention Mechanism

During normal arm movements to either side of the tractor a safety mechanism is employed to prevent the machine from accidentally swinging over to the opposing work side when operating the arms in raised positions.

## Swingover Procedure

To swingover the machine for work on the opposing side 'reach out' should be fully operated to its furthest point then 'lift up' to raise the arms into the upright position, by operating angle the cutterbar can be turned to the opposing side – the transfer of weight and operation of 'lift down' will now permit working on the opposing side.

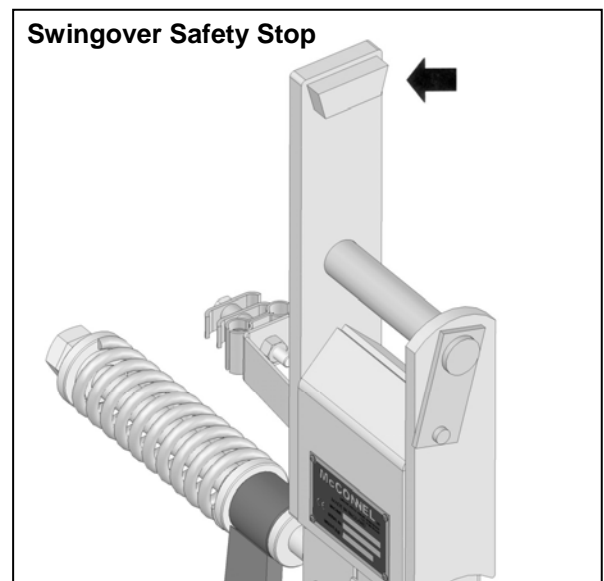
Wherever possible the swingover procedure should be performed on level ground – if swinging over on sloping ground is absolutely unavoidable always carry out the manoeuvre with the tractor facing directly up the slope.

**WARNING: Never attempt the swingover procedure when facing either across or down a slope.**

## Breakaway Protection

A mechanism is built into the lower mounting points to allow 'breakback' of the machine for protection of components in the event of accidental contact with imovable objects. The sprung mechanism works in conjunction with the lift ram base pin allowing the feature to transfer to the whichever side the machine is operating on.

When encountering an obstruction and the tractor continues to move forward the free suspended link will pivot about its mounting bar and allow the complete armhead and frame to move up and back until the obstruction is cleared or the tractor brought to a halt. Resetting of the breakaway is completely automatic with the armhead returning to the work position under gravity.



**⚠ WARNING** It is important to understand that this feature is for component protection in unavoidable circumstances only, the breakaway geometry gives limited movement and therefore should not replace the operator's responsibility to avoid potentially damaging situations.

### Tractor Forward Speed

This is a matter for common sense and experience. Forward speed should be set to provide a clean cut.

### Highway Working

If it is intended to cut roadside hedges or to work in the vicinity where the public have access, it is a statutory requirement that suitable warning signs are placed at both ends of the work area. These signs should not be more than ½ mile (0.8 km) apart. To further promote highway safety the use of headlamps would be beneficial. Hazard warning lamps should not be used as oncoming vehicles could easily misjudge braking distance in presuming the tractor approaching them is stationary.

### Cutterbar – Unclogging, Checking or Adjusting

Before leaving the tractor seat select 'Cutterbar Off', switch off tractor engine and remove the starting key. Should the cutterbar become clogged NEVER, NEVER, NEVER clear any debris from the fingers or knife with your hands - use a stick from the hedge or other suitable tools.

**WARNING:** Always keep fingers away from the knife as the crankshaft fly wheel can move under gravity and activate the knife even though the tractor engine is switched off.

### Transport

Operate the arms to fold them into the transport position - see *photo opposite*.

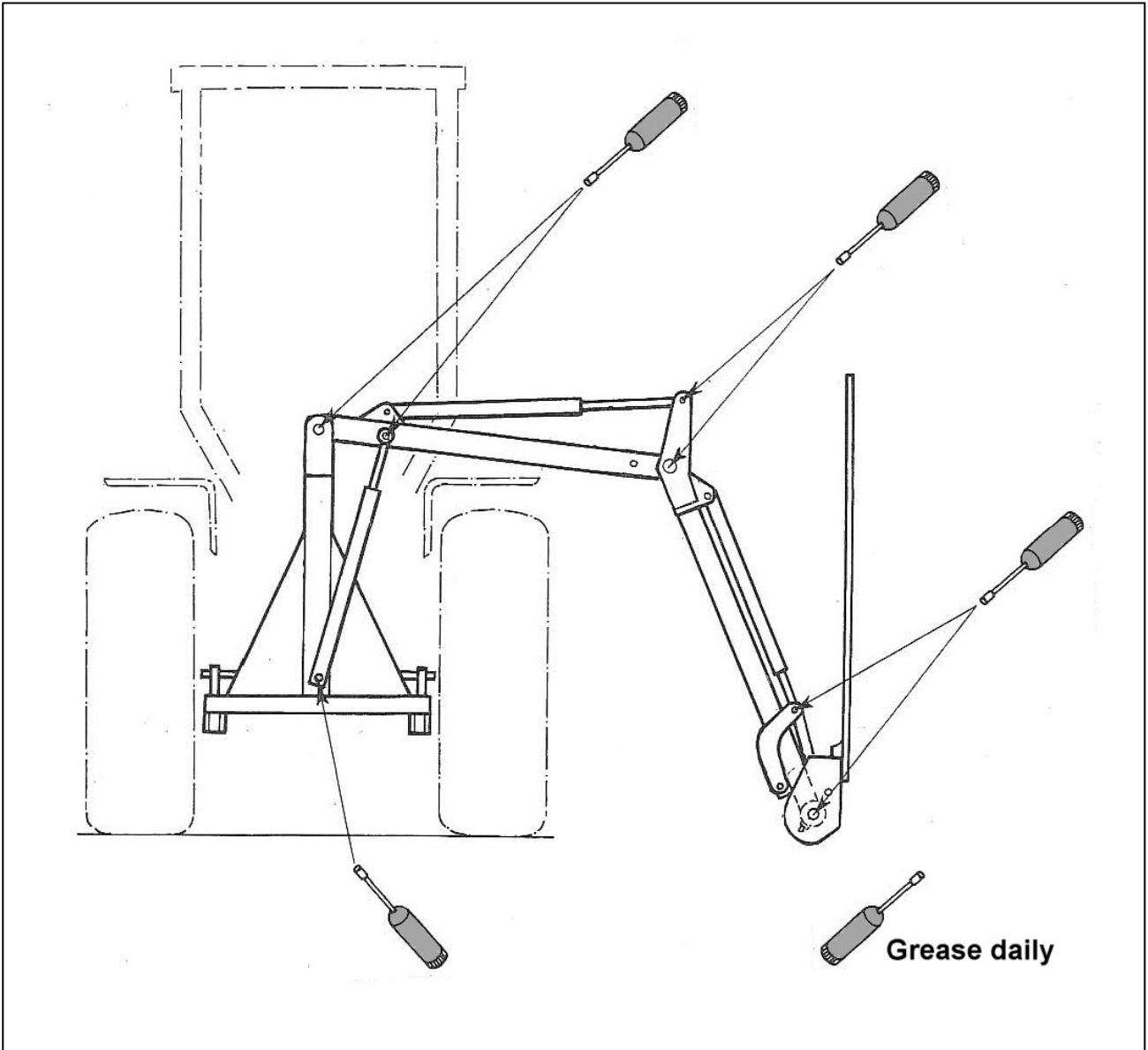
With the tractor switched off, place the cutterbar guard over the knife remembering to keep your fingers away from the knife as it can move even with the tractor engine switched off.

### Optional Extras

Cuttings Tray (Part No. 1090316) bolts to the cutterbar and projects to the rear providing a plate which encourages cuttings to slide off the hedge when topping.



## MAINTENANCE



### **Lubrication**

Refer to the lubrication diagram above and grease daily all points indicated. Remember regular lubrication ensures longer machine life and diminishes service costs. In addition, occasionally oil the con-rod pivots and bushes.

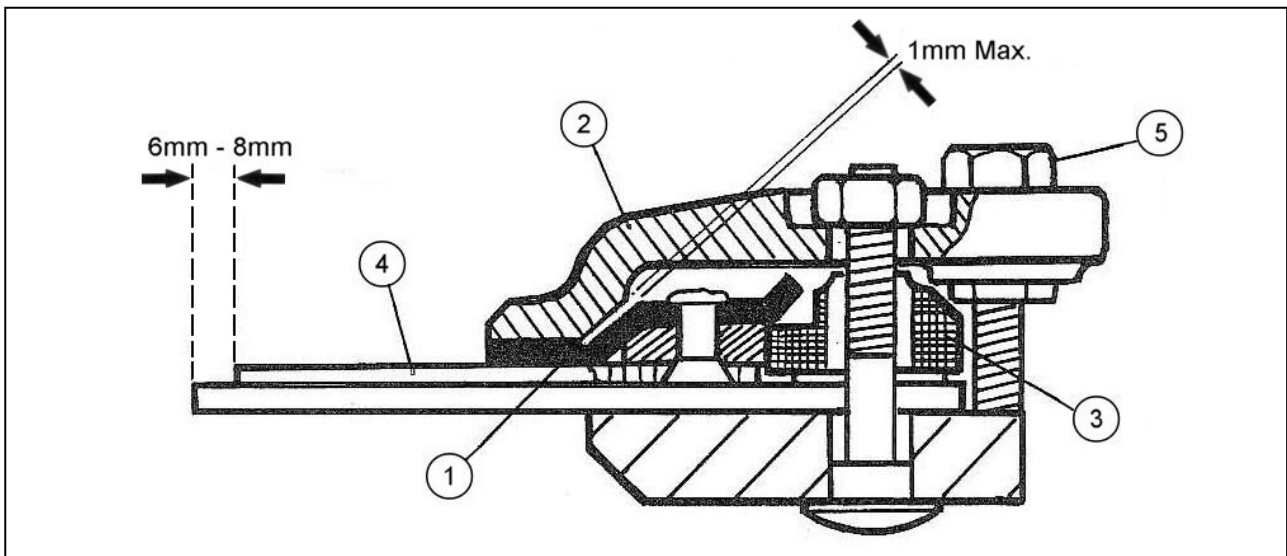
### **Fasteners**

Check on a daily basis that all bolts and nuts are tight and pins are secure.

## CUTTERBAR

### Adjusting the Knife Guides

Before commencing any checks or adjustments lay the cutterbar flat on the ground, select cutterbar off, switch off the tractor remove starting key and disconnect the con rod.



When adjusted correctly the knife sections (4) lie flush between the fingers and the underside of the knife holder (1) with the fingers projecting 6mm to 8mm in front of the knife tips. In addition there must be a maximum clearance of 1mm between the sloping faces of the knife holder (1) and the guide plate (2). This allows clearance for the knife to move freely and can be checked by placing a 5/8" dia bar into the con rod socket in the knife heel and operating by hand.

The guide plate (2) and rubbing plate (3) are mounted through slotted holes which allow the correct lateral positioning of the knife in relation to the fingers.

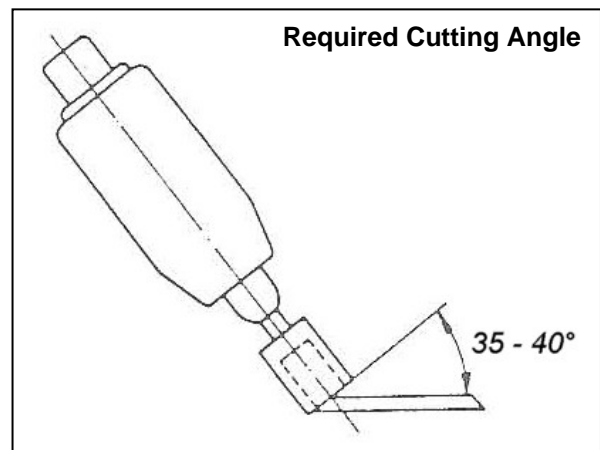
Any play caused by wear between the knife holder (1) and the knife sections (4) is removed by turning the setscrew (5). The knife guide should be adjusted until the mating faces are flush. No downward pressure should be exerted onto the knife as this may impede its free movement.

### Sharpening the knife

After five to twenty operating hours, depending on the work involved, the knives require re-sharpening. It is recommended that the knives be removed from the cutterbar for resharpener. The procedure is as follows:

Switch off tractor and remove the starting key.

- Disconnect the con rod, remove the three setscrews securing the knife heel to the knife and withdraw the knife from the cutterbar.
- Clean the knife and ensure that neither the back nor the knife sections are bent – if required, straighten as necessary.  
A cutting angle of 35°- 40° is required.



A high speed hand grinder should be used, with ideally, a pot shaped pencil grinder of approximately 1" (25mm) diameter by 1 3/8" (35mm) long. Grinding is carried out with the end face of the grinder moving from the base of the knife section up to the points.

It is possible to re-sharpen the knives in situ, the procedure is as follows:

Position the cutterbar on or parallel to the ground. Switch off the tractor engine and disconnect the con-rod. Manually position the knives so that they cover the fingers and clamp together in this position.

Sharpening with files is not recommended as the process tends to leave small burrs on the edge which curl under when the knife is replaced thus impeding the free movement of the knife and leaving a blunt cutting edge.

**⚠ DANGER** It is imperative that great care is adopted at all times when working with the cutterbar to avoid injury – the use of safety gloves and safety glasses is recommended at all times when working with this and all associated components.



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