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McCONNEL

CY2000

ROTARY MOWER

Operator & Parts 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; log onto https://my.mcconnel.com and select 'Machine Registration' which can be found in the 'Warranty' section of the site. **Confirm to the customer that the machine has been registered by completing the verification form below.**

Registration Verification Serial No.

Dealer Name: ……..……..

Dealer Address: ……..……..

Customer Name: ……..……

Date of Warranty Registration: ……/……/..…. Dealer Signature: ……..……

Note to Customer / Owner

Please ensure the section above has been completed and signed by the dealer to verify 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 machine's 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 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

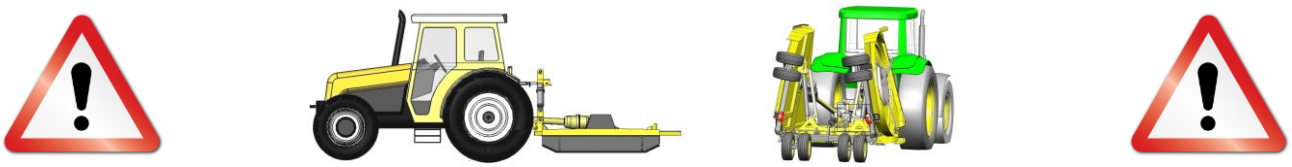
4.01. McConnel Ltd may waive compliance with any of the terms of this limited warranty, but no waiver of any terms shall be deemed to be a waiver of any other term.

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.

McConnel Limited

ROTARY MOWER & TRACTOR PRE-OPERATION INSPECTION



A daily equipment inspection of machine and tractor should be conducted before the equipment is used.

Use the inspection sheets on the following pages to assist with these daily inspections. Damaged or missing guards should be repaired or replaced before operating the mower. Failure to repair or replace damaged guards can result in objects being thrown from the mower and possibly hitting the operator and/or bystanders.

Inspect the Mower for Safe Operating Condition

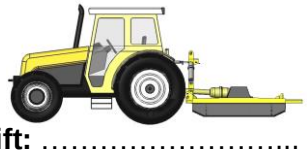
- Make sure the driveline guards and shielding are in place and in good repair.
- Inspect the chain guards, flexible and/or solid defector thrown object shielding to assure that they are in place on the front and rear of the mower deck and in good repair. Repair or replace any damaged or missing thrown 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 tyres, make sure they have the required air pressure.
- Inspect for worn or damaged decals and safety instructions. Replace any 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, SMV's (Slow Moving Vehicle sign), seat belts, and ROPS to ensure they are in place and in good working order.
- Ensure tyres, 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.

Copies of the inspection sheets on the following pages should be retained in this manual for reference; two sets are included to allow removal of one set for photocopying purposes. Alternatively, these inspection sheets can be download from our website via the QR code or using the link below;
https://my.mcconnel.com/service/pre-operation-inspection-documents/

MOUNTED ROTARY MOWER PRE-OPERATION INSPECTION



Mower ID …….. **Date:** …….. **Shift:** ……..

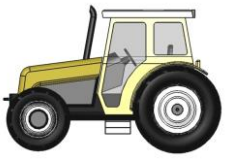
WARNING: Before conducting the inspection, make sure the tractor engine is off, the key removed, all rotation has stopped and the tractor is in park with the parking brake engaged. Make sure the mower is resting on the ground or securely blocked up.

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 and in good condition.		
Driveline/gearbox shields/guards are in good condition.		
Driveline clutches are in good condition, not frozen.		
Driveline telescoping members and u-joints are lubricated.		
Driveline yokes are securely attached to tractor and 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 MACHINE

TRACTOR PRE-OPERATION INSPECTION



Power Arm ID …… **Date:** …… **Shift:** ……

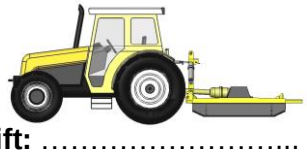
WARNING: Before conducting the inspection, make sure the tractor engine is off, the key removed, all rotation has stopped and the tractor is in park with the parking brake engaged. Ensure any implement attached to the tractor is firmly on the ground.

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 and 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 and oil cooler are free of debris.		
The air filter is in good condition.		

Operators Signature: ……

DO NOT OPERATE AN UNSAFE TRACTOR OR MACHINE

MOUNTED ROTARY MOWER PRE-OPERATION INSPECTION



Mower ID …….. **Date:** …….. **Shift:** ……..

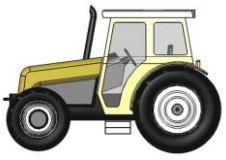
WARNING: Before conducting the inspection, make sure the tractor engine is off, the key removed, all rotation has stopped and the tractor is in park with the parking brake engaged. Make sure the mower is resting on the ground or securely blocked up.

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 and in good condition.		
Driveline/gearbox shields/guards are in good condition.		
Driveline clutches are in good condition, not frozen.		
Driveline telescoping members and u-joints are lubricated.		
Driveline yokes are securely attached to tractor and 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 MACHINE

TRACTOR PRE-OPERATION INSPECTION



Power Arm 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. Ensure 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 and 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 and oil cooler are free of debris.		
The air filter is in good condition.		

Operators Signature: ……

DO NOT OPERATE AN UNSAFE TRACTOR OR MACHINE

LIST OF CONTENTS

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 McConnel CY2000 is a '3-point linkage' tractor mounted rotary cutter ideal for scrub clearance, woodland rides and forestry work. Its robust design and 3 blade cutting unit makes it capable of coping with the thickest of scrub and forestry re-growth. With a cutting width of 1.9m it is suitable for tractors over 100hp.

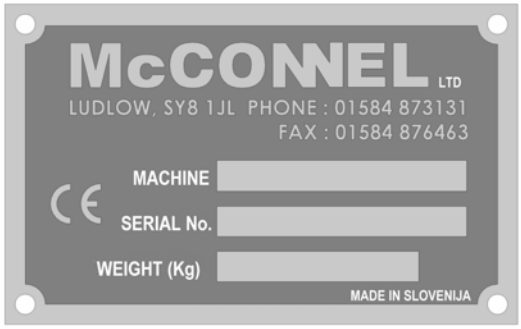
These machines should only be used to perform tasks for which they were designed – use of the machine for any other function may be both dangerous to persons and damaging to components and is therefore not advisable.

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	CY2000
Overall Width	*2.12m (6' 11")*
Cutting Width	*1.9m (6' 3")*
Height Adjustment	*25 – 225mm (1" – 9")*
Power Requirement	*100 – 140hp*
Number of Rotors / Blades	*1 / 3*
Blade Tip Speed	*82.5m/sec (16,230'/min)*
Gearbox Rating	*150hp*
Gearbox Protection	*Slip Clutch*
Weight	*1,400kg (3,086lbs)*

COMPONENT IDENTIFICATION

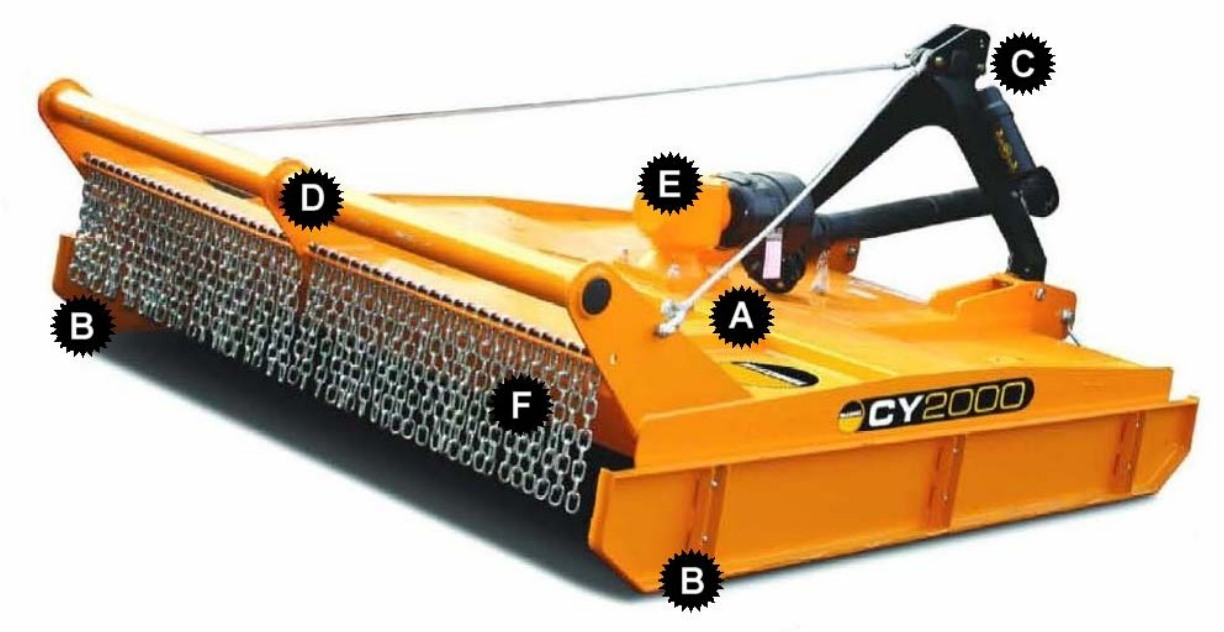


Figure 1

A) DECK
B) ADJUSTABLE SIDE SKIDS
C) 3-POINT LINKAGE
D) REAR NUDGE BAR
E) GEARBOX
F) CHAIN SAFETY GUARDS

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.

1. **Warning -** Read operator's manual before operating or handling this machine. Observe all instructions and safety rules during operation.

2. **Warning -** Keep all persons at a safe distance when the machine is running.

3. **Warning -** Stay clear of mower blades.

4. **Warning -** Remove the ignition key and read the instructions before working on or getting close to the machine, as the blades may still be rotating.

5. **Warning -** Check tightness of all nuts and bolts every 8 hours.

TRACTOR REQUIREMENTS

Tractor must be minimum 100HP equipped with Cat.2 rear linkage.

Independent ‘live drive’ PTO to allow continuous PTO operation even when the tractor’s clutch is operated.

Sufficient weight or fitted ballast over the front wheels of the tractor to ensure complete stability at all times during operation and transport of the machine.

Check chains or stabilizers must be fitted and correctly tightened.

Tractor linkage lift rods must be set to an equal length.

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

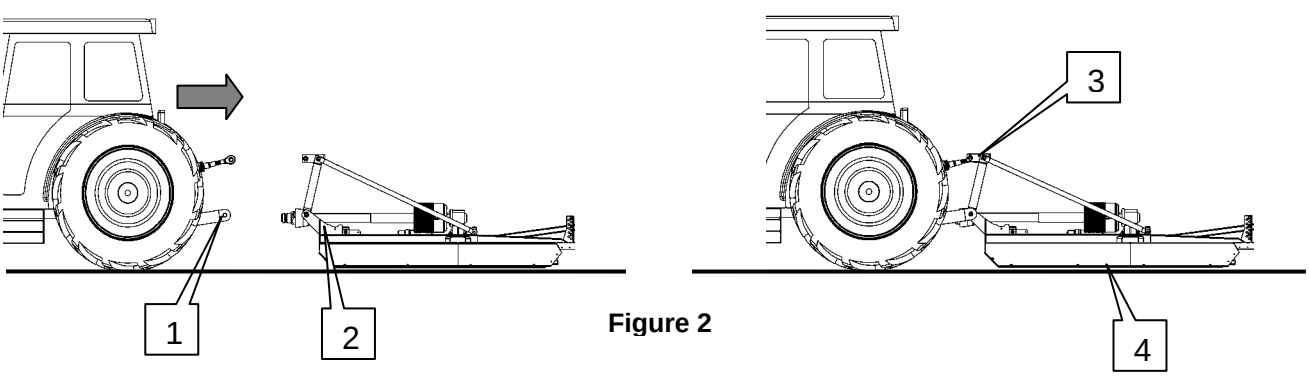


Figure 2

Note: Illustrations used in this manual are for general purpose only and the machine shown may differ slightly in appearance to your actual machine.

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

- Disengage the PTO drive.
- Reverse tractor squarely to the machine *(Fig.2).*
- 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 Measurement

Measure the PTO shaft and cut to the dimension shown *(Fig.3)* – 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.

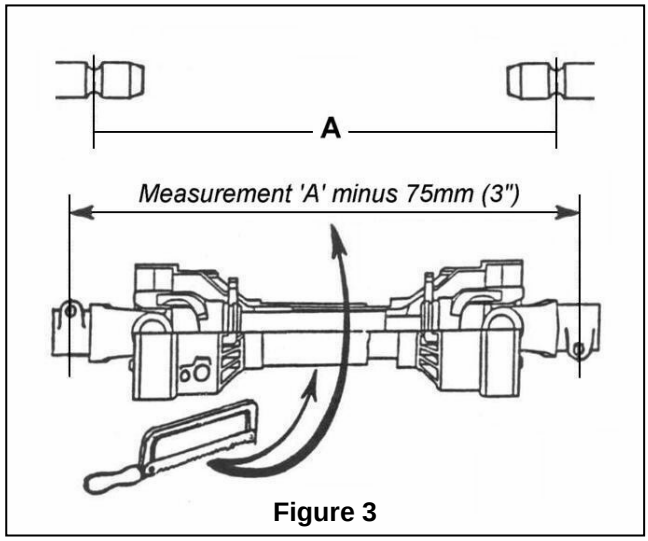


Figure 3

PTO Shaft Length Adjustment

1. Shorten outer plastic tube to 40mm less than the shortest envisaged shaft length as illustrated *(Fig.4)*.
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.

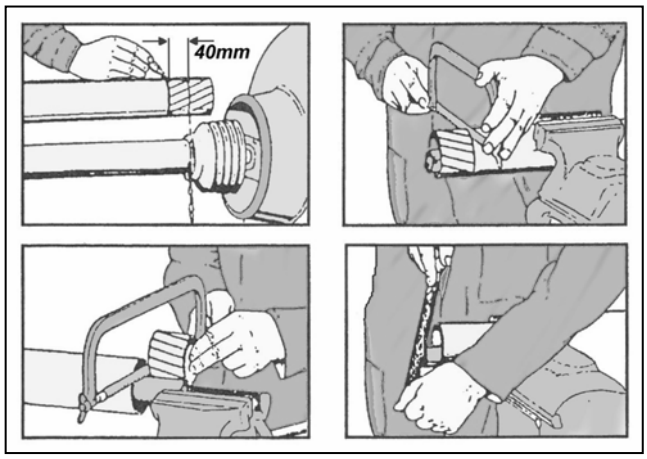


Figure 4

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.

Height

Cutting height adjustment is achieved by raising or lowering the outer skid plates on the sides of the machine. Lowering the skids produces a longer cut, raising the skids a shorter cut. Always set the skids using matching hole positions front to rear and side to side.

Machine Protection

To prevent gearbox damage the PTO is fitted with a slip clutch. When cutting in extreme conditions where solid objects are likely to be found it is recommended that the operator reduces the engine revs to allow the blades to pivot more easily when striking solid objects, and proceed with caution.
The clutch settings should not be altered without first seeking specialist advice from your local dealer or the manufacturer's service department.
Never over-tighten the pressure springs on the slip clutches as this could result in severe damage to the gearbox and drive lines, as well as infringing the machines warranty.

Important: If the machine has been laid up for any length of time there is a risk of the clutch plates rusting and seizing together. **Never operate the machine in this condition** as there will be no protection to the drive line and gearboxes against shock loading.
To free the clutch plates, first slacken all pressure springs and run up the machine for a short period, deliberately try to cause the clutch to slip. Finally, re-tighten the tension spring bolts to their original length, taking great care not to over-tighten.
If in any doubt, consult your local dealer for further advice.

Safety Guards

It is vital in the interests of safety that all guarding 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.

- Raise the machine off ground using tractor hydraulics *(Fig.5).*

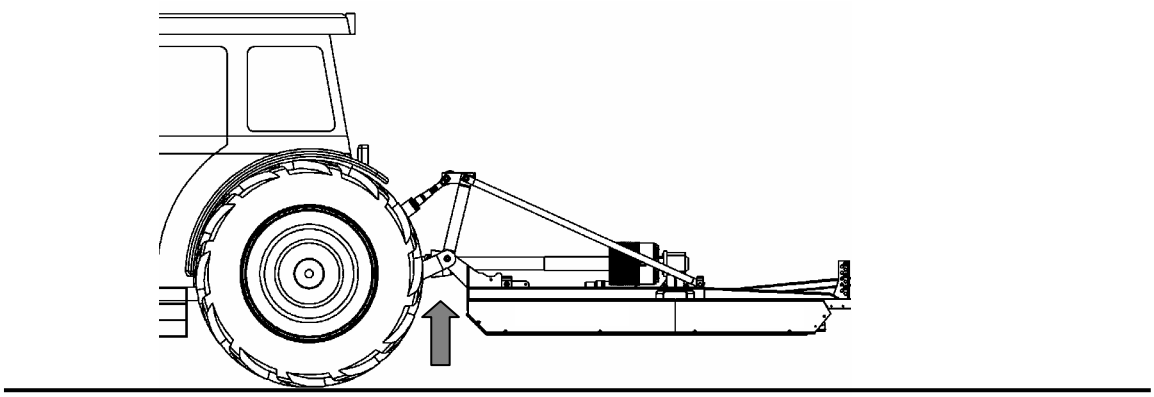


Figure 5

- 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 1000 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 – check the machine over to determine the cause, do not use the machine until the problem has been eliminated.

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.

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 *(Fig.7).*

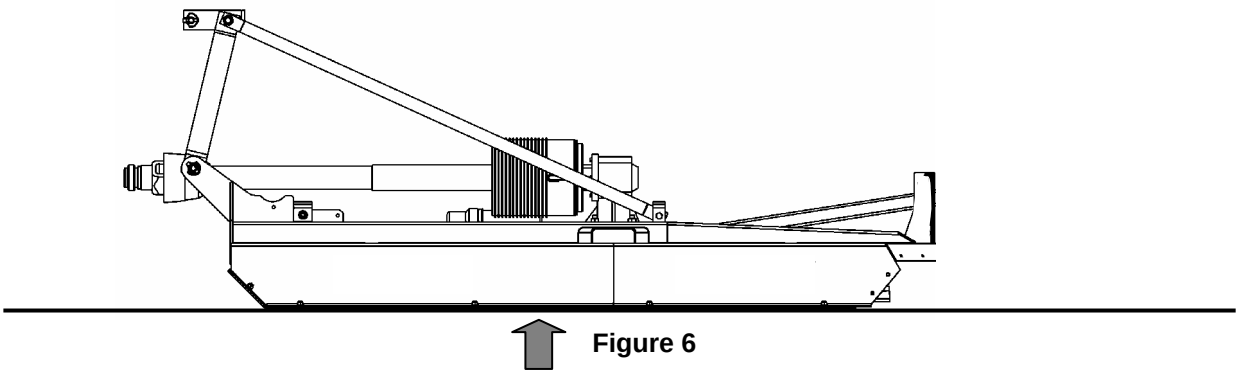


Figure 6

Engage the PTO only when the tractor engine is at low revs to prevent shock damage to the machine. Slowly increase the engine revs to achieve the standard 1000rpm PTO speed. *If at any time serious vibration occurs, stop the engine immediately and check that no blades are missing* - following all safety precautions. The cause must be found and rectified immediately or other components may be affected.

When in work, lower the machine to the ground carrying its weight on the skids allowing the machine to follow the contours of the ground and ensuring there is sufficient slack in the wire ropes. Select a sensible forward speed bearing in mind the density of growth, the terrain, and the available horsepower, taking extra care when turning, particularly on slopes.

When turning, it is not necessary to lift the machine off the ground but instead allow sufficient room to turn in a large radius. The machine only needs to be raised when turning in a tight corner or reversing over dense undergrowth or when operating on the front linkage.

Quality of finish is determined by the forward speed, i.e. a slow speed will produce a high quality of cut, whereas faster forward speeds are used when high output is the first priority. When operating in dense growth, particularly if cutting material more than 3" *(75mm)* thick, it is possible to cut going backwards. To reverse over scrub, use the nudge bar to push the material down and into the path of the blades. Proceed with caution especially where there may be risk of hitting solid obstacles. In very heavy conditions under load it is better to take a little at a time to prevent overloading the gearbox slip clutch.

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 1000RPM PTO speed.

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 a steady 1000 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.

Safety First

- Never leave the tractor seat without first disengaging the PTO and stopping the engine.
- Ensure all rotating parts have stopped turning.
- Never attempt any repairs, maintenance, service or any other checks with the machine raised on the tractor hydraulics.
- Always fully lower to the ground, or securely prop the machine on substantial servicing stands.
- Always replace all guards and retaining chains after servicing/maintenance is completed.

TRANSPORT

Normally the machine will need to be driven to the work site. To put the 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.

Always observe Public Highway Regulations concerning the towing of implements, and securely attach a registration and lighting board. Take care to slow down when travelling over rough ground to avoid ‘bouncing’ of the machine on the linkage causing unnecessary strain.

MACHINE REMOVAL & STORAGE

In the parking position the machine rests on the skids at both sides. To put the machine into this position follow the procedure below:

- 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(s) that need replacing so that parts can be ordered.

Initial Maintenance Tasks

The following checks should be performed **before the first operation**, **after the first hour,** then **after 4 hours.**

- Check gearbox bolts.
- Check blade bolts are fully tightened and in particular the castle headed nut on the blade rotor.
- Check retaining bolts on the drive shaft.
- Grease all lubrication points.
- After the first 50 hours drain and replace the gearbox oil. Replace with EP90 gear oil

It is your responsibility to maintain your machine to ensure a long reliable working life.

Torque Settings

The figures stated below are recommended **maximum** settings only.

Size:	Tensile strength:	Description:	Torque Setting
M20	8.8	Gearbox bolts	475 Nm.
M16	8.8	Blade carriers	280 Nm.
M30	8.8	Blade bolts	1650 Nm.

Daily (8 Hourly) Maintenance Tasks

- Grease all lubrication points on the PTO.
- Check condition of blades and blade bushes and ensure all retaining bolts are fully tight.
- Check gearbox oil, replenish with ‘EP90’ gear oil as necessary to the correct level line on the dipstick provided with each gearbox.
- Dismantle and clean PTO sliding surfaces and re-grease. Grease universal joints.

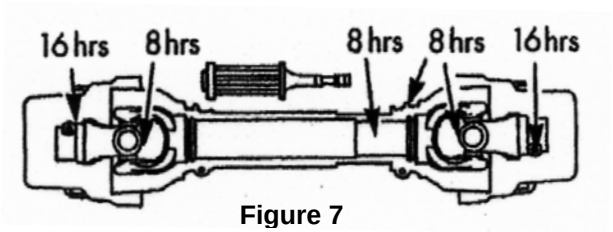


Figure 7

Every 16 Hours

- Grease PTO inner tube and push pins

Regular Maintenance Tasks

- Check there is no wrapping of string, plastic, grass or other debris between rotor boss and blades.
- Inspect gearbox seals for leaks.
- Regularly check the rotor boss retaining castle nut for tightness. *First remove the split pin, select the correct size socket in 3/4" drive and fully tighten the nut. When replacing the split pin do not slacken the nut to align the hole, always tighten.* **NOTE: Failure to regularly check this nut will result in serious wear to hub, which is expensive to repair.**

It is most important that all gearbox and blade bolts are regularly checked to be very tight. When the machine is new there will be a 'bedding in' period where very frequent checking is important.

Power Takeoff Shaft (PTO) Maintenance

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.

PTO 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.

Blades
CAUTION: When carrying out maintenance work on or near the blades be careful of free-swinging blades over-centring and falling. It is recommended that protective headgear, gloves and goggles are worn.

The blades can be re-sharpened by grinding the cutting edges - care must be taken that the blades are of the same weight and length after grinding. Do not over heat when grinding, as this will affect the hardness of the blades.

All the blades are free swinging and swivel on hardened steel bushes, which are easily replaced. When replacing blades, it is important that blades are replaced in sets, in order to retain balance of the rotor. Bushes must also be replaced when new blades are fitted.

If the blades are showing any signs of severe wear, damage or cracking, they must be replaced immediately. Never attempt to weld the blades; this will make them very brittle and thus extremely dangerous. **Do not take risks with the cutting blades - if in doubt, replace.**

Skids
When operating on abrasive soils, particularly in stubbles and similar conditions with thin ground cover, excessive skid wear may be experienced. To provide extra protection, and to prolong the life of the skids, special hard facing rods are available.

If working in wet and muddy conditions, ensure that debris is not allowed to build up on the deck.

Slip Clutch Maintenance & Settings
The compression of the Belleville spring used on this friction clutch must be adjusted to compensate for wear of the linings and to maintain the desired setting.

Check the condition of the friction discs before use and following periods of storage, if they need freeing. Release the tension from the spring and turn the clutch while holding the PTO stationary. Re-adjust the spring compression to the original setting.

Following seasonal use, unlock the spring tension and store clutch assembly in a dry place. Check condition of friction linings and reset spring compression to original height before use.

Should the assembly overheat due to frequent or prolonged clutch slipping, dismantle for inspection. The original thickness of the lining is 3.2mm, replace them when worm to 2.5mm. Clean up all contact surfaces and replace any damaged components before assembly.

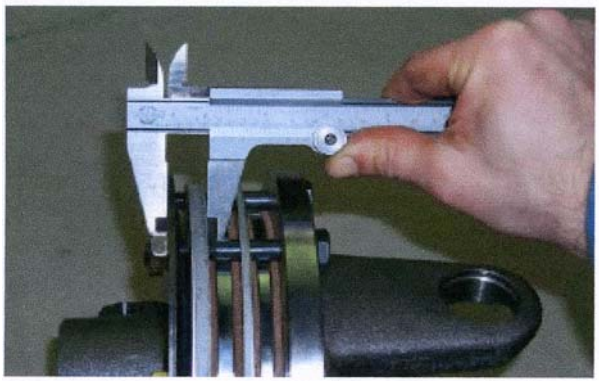


Figure 8

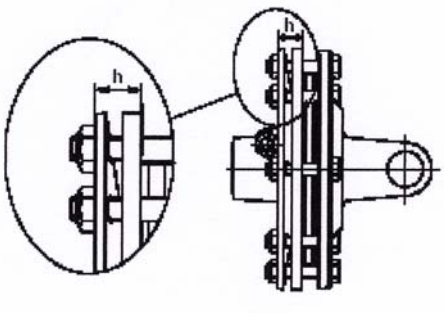


Figure 9

Fig No.	Position	Part No.	Setting	Machine
9 (h)	Centre	5770085A	20.1mm	CY2000 (1000rpm)

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)

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

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'Genuine Replacements' from the 'Original Equipment Manufacturer'

McCONNEL LIMITED

Through your local Dealer or Stockist

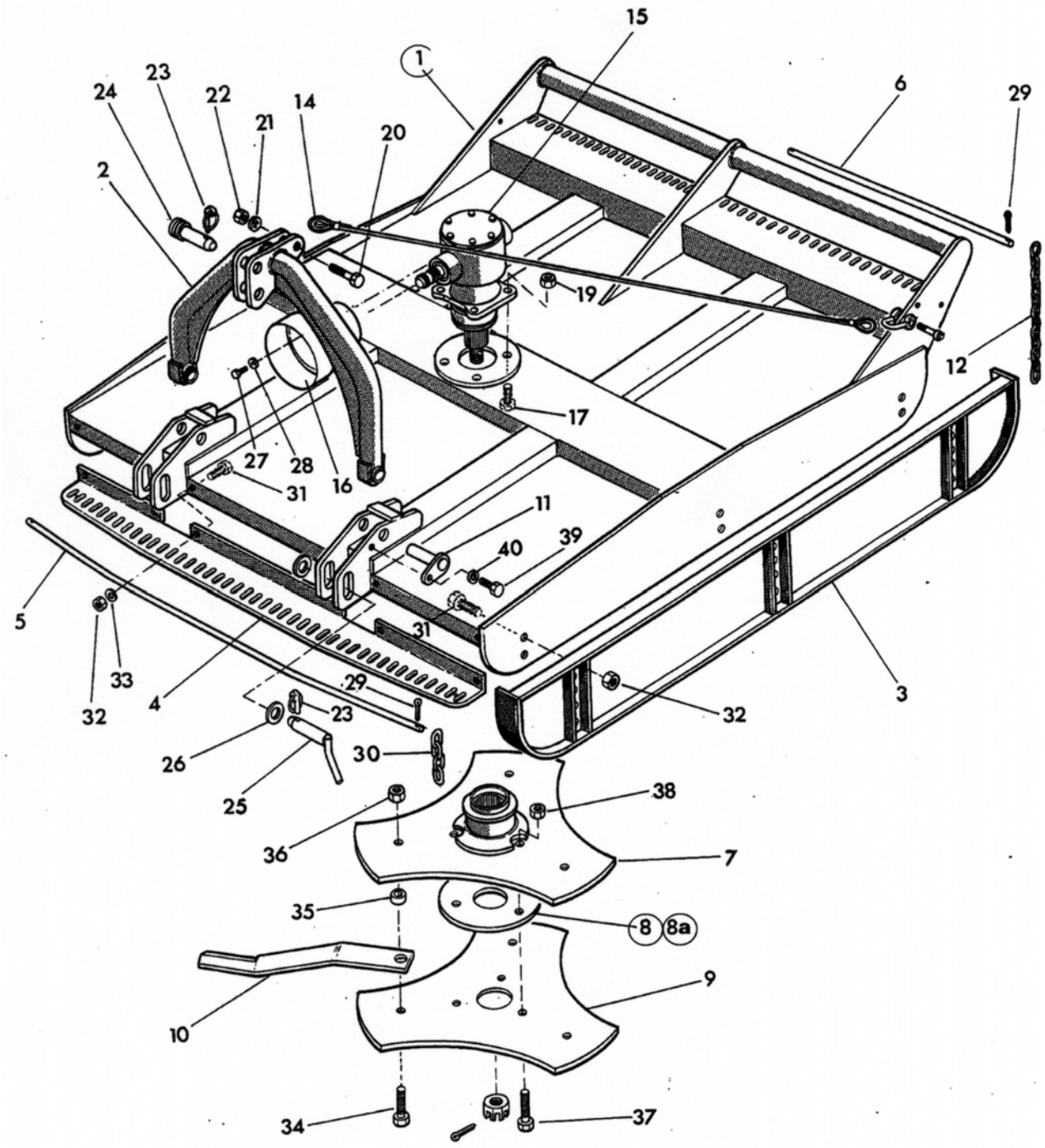
Always quote:

- ***Machine Type***
- ***Serial Number***
- ***Part Number***

Design improvements may alter some of the parts listed in this manual –
the latest part will always be supplied when it is interchangeable with an earlier one.

MAIN FRAME ASSEMBLY

McCONNEL

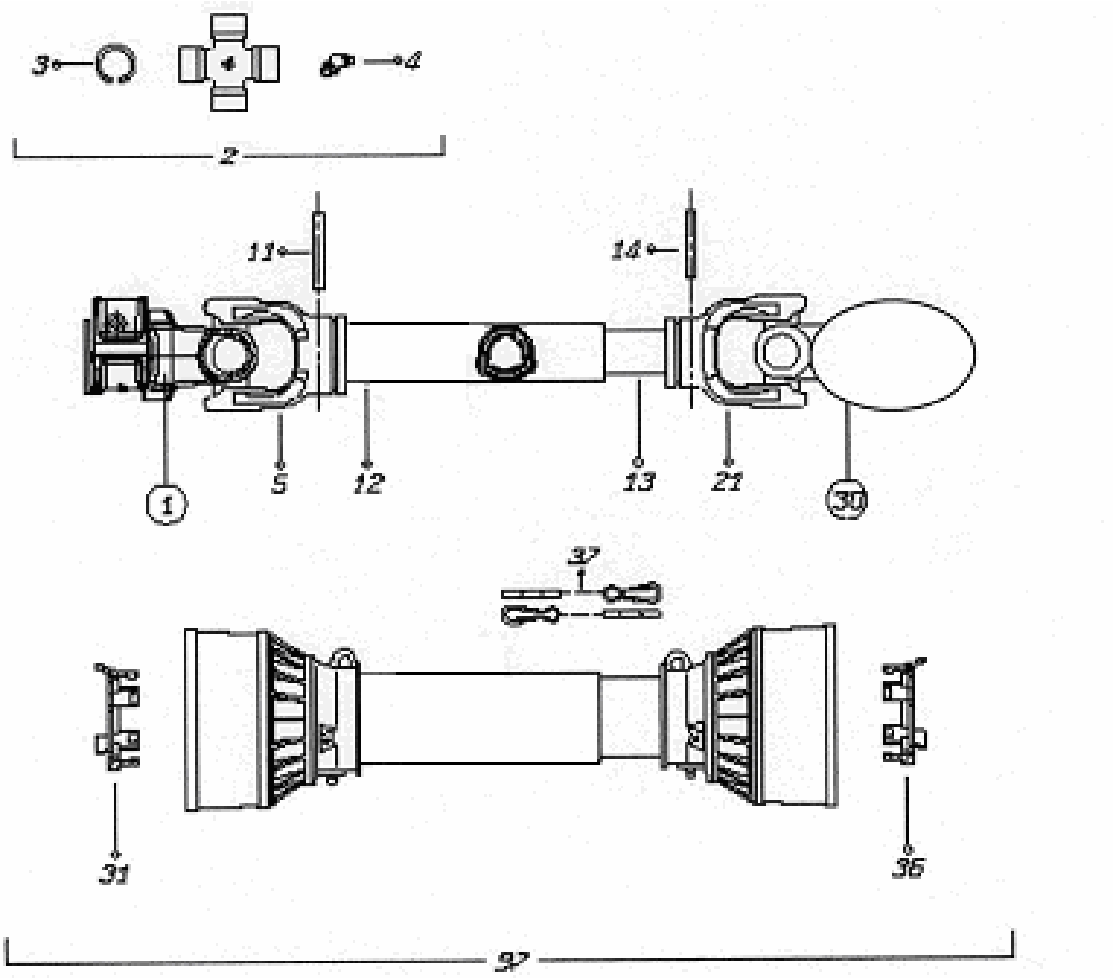


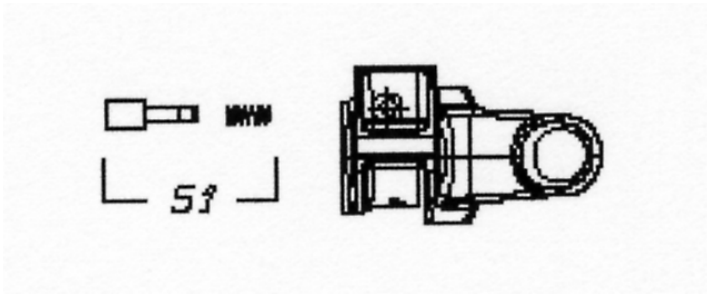
MAIN FRAME ASSEMBLY

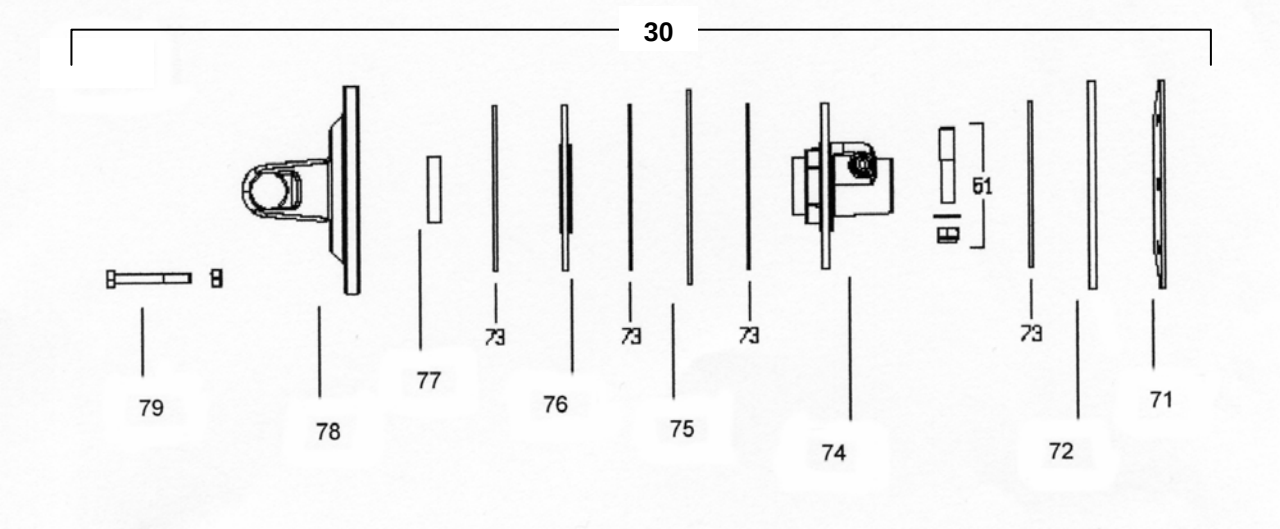
McCONNEL

REF.	PART No.	ENGLISH DESCRIPTION	GERMAN DESCRIPTION	DANISH DESCRIPTION
1	1800043	Main body	Körper	Krop
2	1800049	Headstock	A-Rahmen	A-ramme
3	1800048	Skid	Gleitschiene	Glideskinne
4	1800046	Chain guard	Kettenhalter	Kædeholder
5	1800045	Chain retaining bar	Kettenstange	Kædestang
6	1800044	Chain retaining bar	Kettenstange	Kædestang
7	1800047	Upper blade carrier	Messerhalter Oben	Knivholder øverst
8	1800052	Blade spacer	Scheibe	Skive
8a	1800051	Blade shim	Distanzscheibe	Knivshims
9	1800050	Lower blade carrier	Messerhalter Unten	Knivholder nederst
10	7770594	Blade	Messer	Kniv
11	1777611	Pin	Bolz	Pløk
12	8770622	Chain	Kette	Kæde
14	6770918	Wire rope c/w shackle	Kabel	Wire
15	5780004	Gearbox	Getriebe	Gearkasse
16	5770129	Cone	Schutz	Beskyttelse
17	2770400	Bolt	Bolz	Bolt
19	2770409	Nut	Mutter	Møtrik
20	2770463	Bolt	Bolz	Bolt
21	2770454	Flat washer	Scheibe	Fladskive
22	2770447	Nut	Mutter	Møtrik
23	6310206	Lynch pin	Ring Splint	Ringsplit
24	6310203	Pin	Bolz	Pløk
25	6310208	Pin	Bolz	Pløk
26	2770470	Washer	Scheibe	Skive
27	2770418	Set screw	Schraube	Skrue
28	2770434	Flat washer	Scheibe	Fladskive
29	2770513	Split pin	Splint	Split
30	8770621	Chain	Kette	Kæde
31	270443	Bolt	Bolz	Bolt
32	2770417	Nut	Mutter	Møtrik
33	2770436	Flat washer	Scheibe	Fladskive
34	2770620	Bolt	Bolz	Bolt
35	7770593	Bush	Buchse	Bøsning
36	2770427	Nut	Mutter	Møtrik
37	05.285.04	Bolt	Bolz	Bolt
38	2770414	Nut	Mutter	Møtrik

PTO SHAFT ASSEMBLY





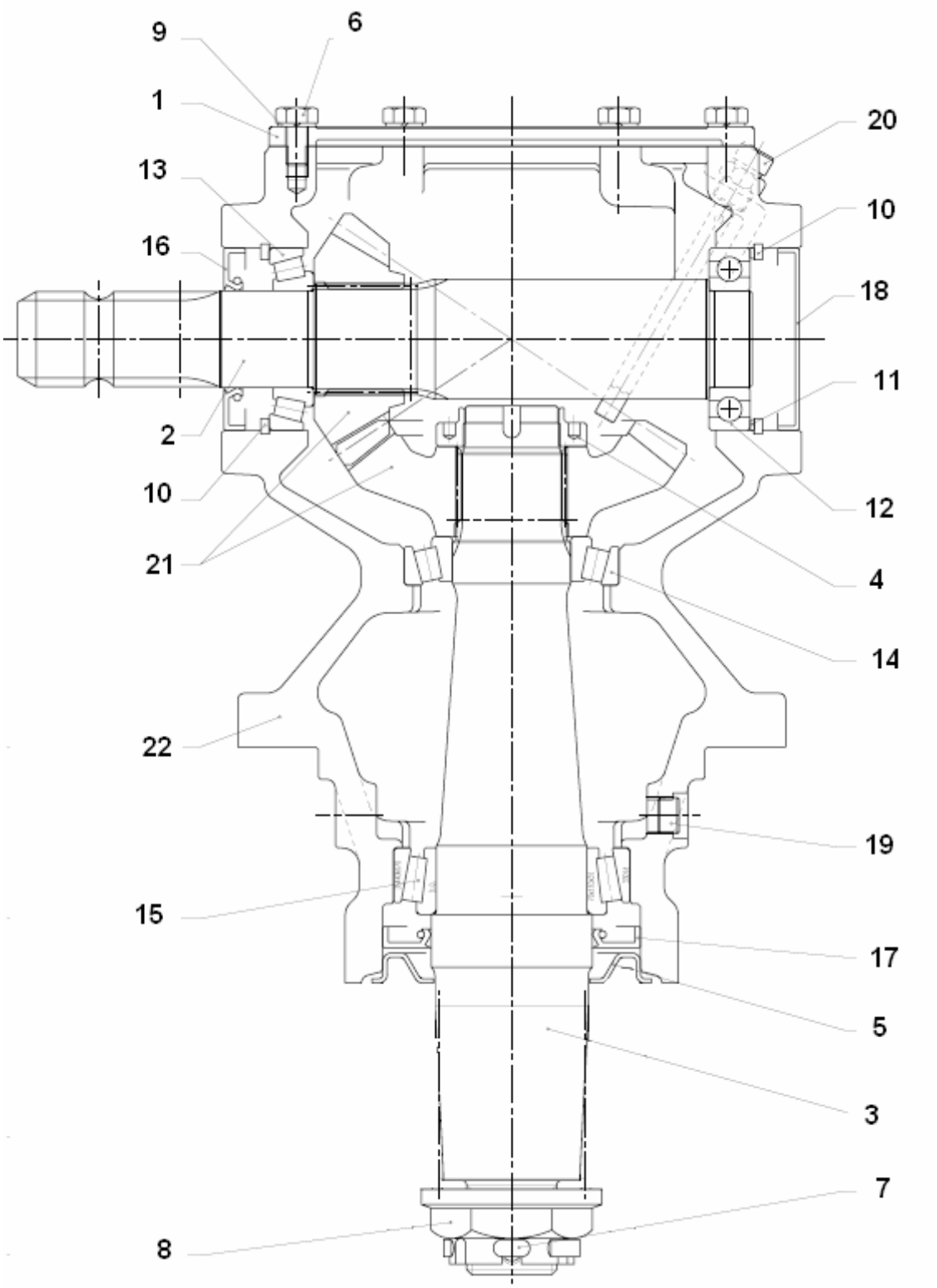


PTO SHAFT ASSEMBLY

McCONNEL

REF.	PART No.	ENGLISH DESCRIPTION	GERMAN DESCRIPTION	DANISH DESCRIPTION
	5770085A	PTO shaft	Gelenkwelle Kpl.	Kardan kpl.
1	5771007	Yoke 21 spline	Gabel 21 nut	Gaffel 21 spline
2	5771012	Cross journal	Kreuz	Kryds
5	5771008	Outer tube yoke	Gabel Ausen	Gaffel Yder
11	2770516	Roll pin	Splint	Rørsplit
12	5781011	Tube	Rohr	Rør
13	5781010	Tube	Rohr	Rør
14	2770516	Roll pin	Splint	Rørsplit
21	5771011	Inner tube yoke	Gabel Innen	Gaffel inder
30	577085/1	Clutch assy	Kupplung Kpl.	Kobling kpl.
31	5771014	Outer bearing	Lager Ausen	Leje yder
36	5771019	Inner ring	Lager Innen	Leje inder
37	5771020	Chain	Kette	Kæde
51	5771033	Push pin	Lockbolz	Låsepind
61	5771322A	Taper pin		
71	5770136	Spring	Feder	Fjeder
72	5770135	Outer plate	Platte Ausen	Plade yder
73	5771328	Friction linning	Reibscheiben	Koblingsbelægning
74	5770085/2	Hub	Nabe	Nav
75	5770085/3	Inner plate	Platte Ausen	Plade yder
76	5770085/4	Drive plate	Platte	Plade
77	5771319	Bush	Buchse	Bøsning
78	5770085/5	Flanged yoke	Gabel	Gaffel
79	5770085/2	Bolt	Bolz	Bolt

GEARBOX ASSEMBLY



GEARBOX ASSEMBLY

McCONNEL

REF.	PART No.	ENGLISH DESCRIPTION	GERMAN DESCRIPTION	DANISH DESCRIPTION
	5780004	Gearbox assy	Getriebe	Gearkasse
1	5780015	Lid	Deckel	Låg
2	5780010	Input shaft	Eingangswelle	Indgansaksel
3	5780004/1	Output shaft	Ausgangswelle	Udgangsaksel
4	5780004/3	Lock nut	Lock Mutter	Låsemøtrik
5	5780012	Shield	Stahlscheibe	Stålskive
6	2770418	Screw	Schraube	Skrue
7	2770510	Split pin	Splint	Split
8	5780017	Castle nut	Mutter	Møtrik
9	2770469	Washer	Scheibe	Skive
10	2777517	Circlip	Lockring	Låsering
11	5780004/5	Shim set	Distanzscheibe Satz	Shims sæt
12	4771599	Bearing	Lager	Leje
13	4770660	Bearing	Lager	Leje
14	4771602	Bearing	Lager	Leje
15	4771607	Bearing	Lager	Leje
16	4771507	Oil seal	Dichtung	Pakdåse
17	4771508	Oil seal	Dichtung	Pakdåse
18	4771509	End seal	Dichtung	Pakdåse
19	5771126	Plug	Schraube	Prop
20	5780004/4	Dipstick	Messstab	Målepind
21	5780004/2	Gear set	Rad Satz	Gearhjuls sæt

SAFETY WARNING & INFORMATION DECALS

1.

2.

3.

4.

5.

6.

7.

8.

9.

10.

REF.	PART No.	ENGLISH DESCRIPTION
1	8770357	Decal - 'Keep safe distance when machine is running'
2	8770361	Decal - 'Stay clear of blades'
3	8770363	Decal - 'Read manual'
4	8770358	Decal - 'Shut off engine, remove key'
5	8770340	Decal - 'Read book'
6	8770323	Decal - 'Recommended
7	8770322	Decal - 'Grease point'
8	8770306	Decal - 'Bolts tight'
9	8770367	Decal - 'Read manual'
10	1290797	Decal - CY2000
11	8770346	Decal - 'Check chains' *(Not illustrated)*

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