

Publication 425
September 2002
Part No. 41570.25



McCONNEL

GK150

FINISHING MOWER

Operator and Parts Manual



IMPORTANT

VERIFICATION OF WARRANTY REGISTRATION

(Applies to UK Machines only)



UK DEALER WARRANTY INFORMATION & REGISTRATION VERIFICATION

It is imperative that the selling dealer registers this machine with McConnel Limited within 7 days of delivery to the end user – failure to do so may affect the validity of the machine warranty.

To register a machine go to the McConnel Limited web site at www.mcconnel.com, log on to '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 (UK Machines)

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.

EC DECLARATION OF CONFORMITY

*Conforming to EEC Machinery Directive 98/37/EC**

We,

McCONNEL LIMITED,

Temeside Works, Ludlow, Shropshire SY8 1JL.

Declare under our sole responsibility that:

The product (type) Tractor Mounted Finishing Mower

Product Code GK150

Serial No. & Date Type

Manufactured by the above company/*

(insert business name and full address if not stated above)*

Complies with the required provisions of the Machinery Directive 98/37/EC, * previously Directive 89/392/EEC as amended by Directives 91/368/EEC, 93/44/EEC and 93/68/EEC.

The machinery directive is supported by;

- BS EN ISO 12100:2003 Safety of Machinery. This standard is made up of two parts; Part 1 Terminology, methodology, Part 2 Technical Specifications.
- BS EN 1050 Safety of machinery - Principles of risk assessment.
- and other national standards associated with its design and construction as listed in the Technical File.

The Machinery Directive is fully implemented into UK law by means of the Supply of Machinery (Safety) Regulations 1992 (SI 1992/3073) as amended by The Supply of Machinery (Safety) (Amendment) Regulations 1994 (SI 1994/2063).

Signed John Frank

on behalf of McCONNEL LIMITED

Responsible Person

Status: Chief Design Engineer

Date: May 2005

LIST OF CONTENTS

Operator Section	Page No.
1. GENERAL INFORMATION	2
1.1 Introduction	2
1.2 Machine Identification	2
2. TECHNICAL FEATURES	3
2.1 General description	3
2.2 Technical Specifications	4
2.3 Equipment Specifications	
2.4 Model Variants	5
3. SAFETY INFORMATION	6
3.1 General Safety Rules	6
3.2 Safety Rules Concerning Road Traffic	7
3.3 Safety Rules During Use	7
3.4 Safety Guards	8
3.4 Safety Decals – Description and Location	8
4. INSTALLATION & HANDLING	9
4.1 Lifting and Unloading	9
4.2 Attaching and Detaching the Machine	9
4.3 Fitting the PTO Shaft	10
4.4 Tractor Stability	11
4.5 Parking	11
5. ADJUSTMENT & SETUP	12
5.1 Cutting Height Adjustment	12
6. USE & OPERATION	13
6.1 Starting	13
6.2 Working	13
6.3 Stopping	14
6.4 Transport Position	14
7. MACHINE MAINTENANCE	15
7.1 Initial Checks	15
7.2 Regular Maintenance	15
8. TROUBLESHOOTING	17
9. REPLACING PARTS	18
9.1 Belt Replacement	18
10. MACHINE DISPOSAL	19
Spare Parts Section	
11. SPARE PARTS DIAGRAMS & PARTS LISTS	21

1. GENERAL INFORMATION

1.1 Introduction

This operation and maintenance manual is intended for the professional user. It is mandatory to follow these instructions in order to prevent events which could endanger the operator's and other people's safety, apart from the correct functioning of the mower. In case of doubt, do not experiment, call McConnell after-sales service instead, or the specialised McConnell dealer.

1.2 Identifying the machine

The machine is fitted with an identification plate which is stamped with the data necessary to identify the model and the serial number of the machine. This information should be quoted when ordering replacement parts for your machine.

It is recommended, when required, that 'Genuine Replacement Parts' be fitted to this machine to avoid altering the technical features of the Mower. McConnell Limited is not responsible for any damage or injuries to people due to unauthorized modifications or the use of non-genuine spare parts.

This machine is in conformity with the following provisions of law:

Directive Machine 89/392/CEE and following additions:

91/368/CEE, 93/44/CEE and 93/68/CEE;

Regulations UNI EN 292/1 and 292/2 (machinery safety).

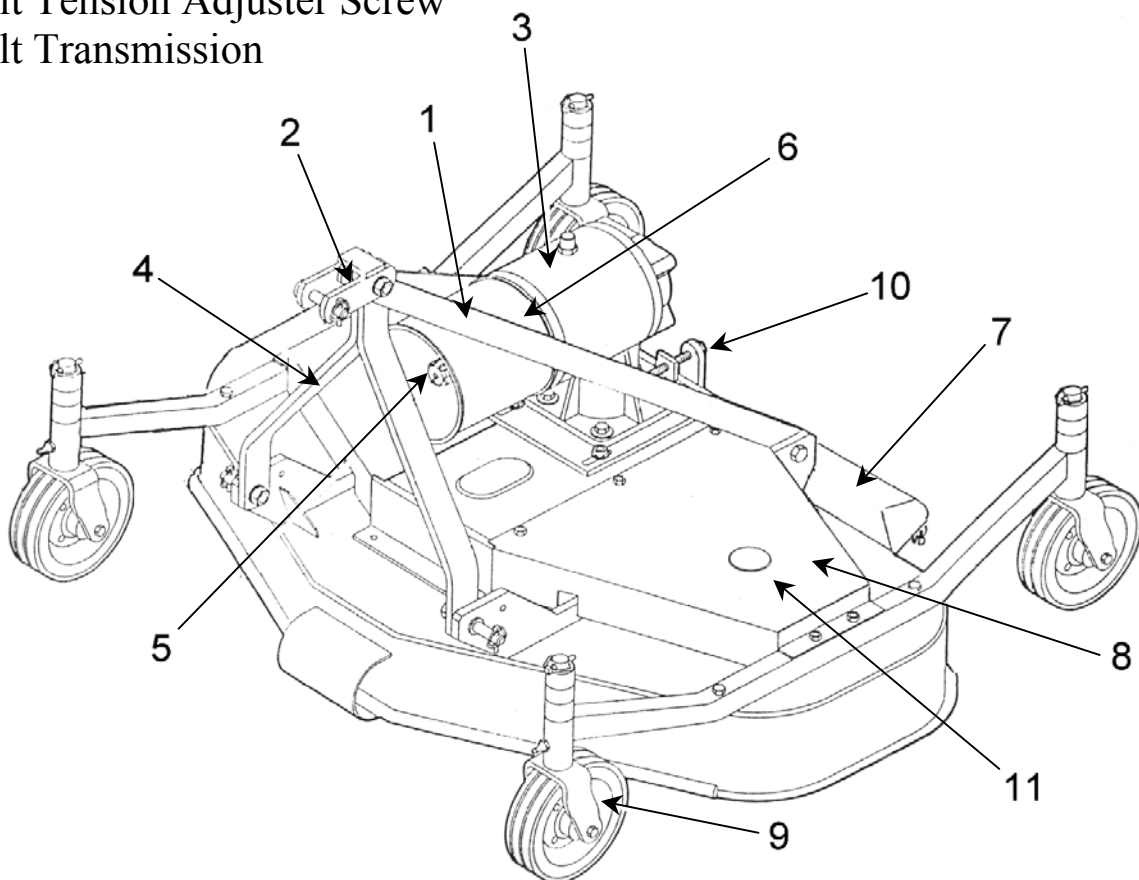
2 TECHNICAL FEATURES

2.1 General Description

The GK150 Rotary Finishing Mower, from now on also called the machine, has been designed for turf and grass maintenance in areas such as parks and playing fields. Its light weight and low power requirement means it is best suited to small tractors. Any other use is considered improper and the manufacturer disclaims all responsibility for any consequential injuries to people or for damage to the machine caused by improper use or failure to adhere to the safety and maintenance information provided.

Technical names

1. 3 Point Linkage (upper)
2. Top Link
3. Gearbox
4. 3 Point Linkage (lower)
5. Power Take Off (PTO)
6. Driveline Shields/Guarding
7. Discharge
8. Pulley Shields/Guarding
9. Swiveling Wheels
10. Belt Tension Adjuster Screw
11. Belt Transmission



2.2 Technical Specifications

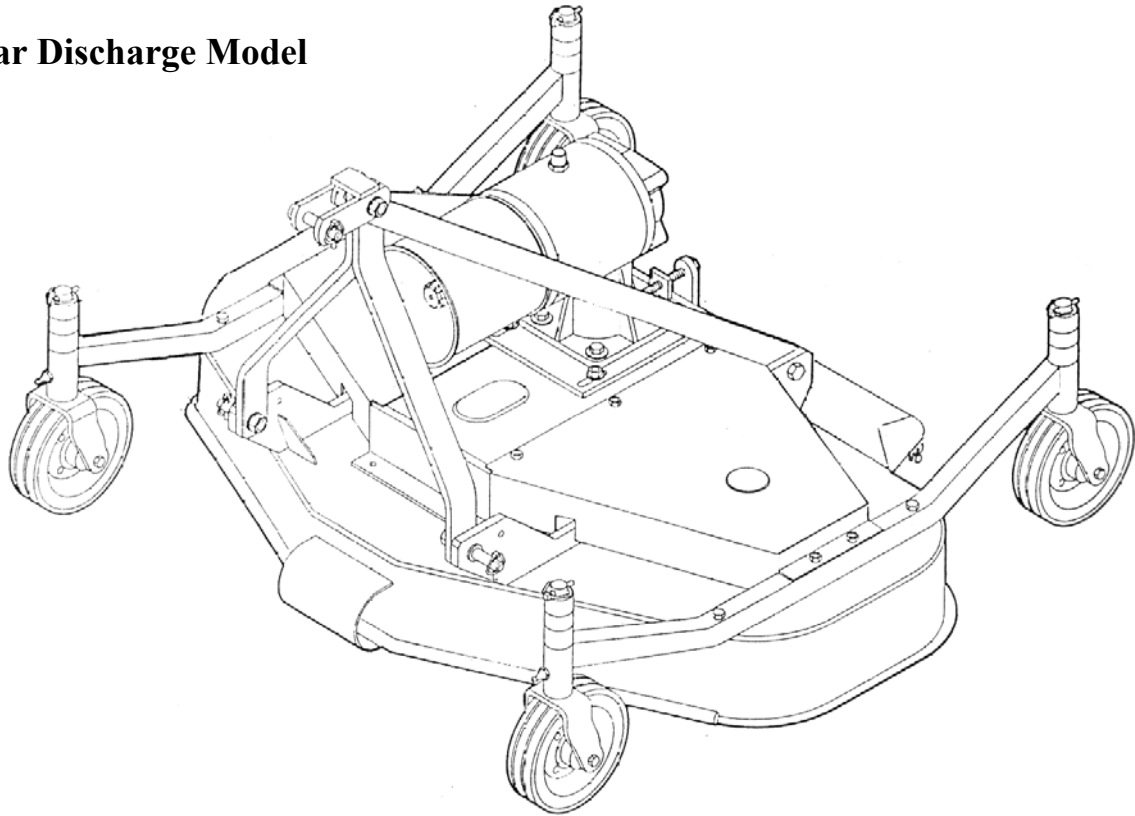
Width of Cut	1500mm
Min. Tractor req'd power	17-24kw / 23-32hp
PTO Speed	540 rpm
Weight	190 kg
Tractor Attachment	Cat.1
No. of Blades	3
Width 'A'	1600mm
Length 'B'	1220mm
Height 'C'	820mm

2.3 Equipment Specifications

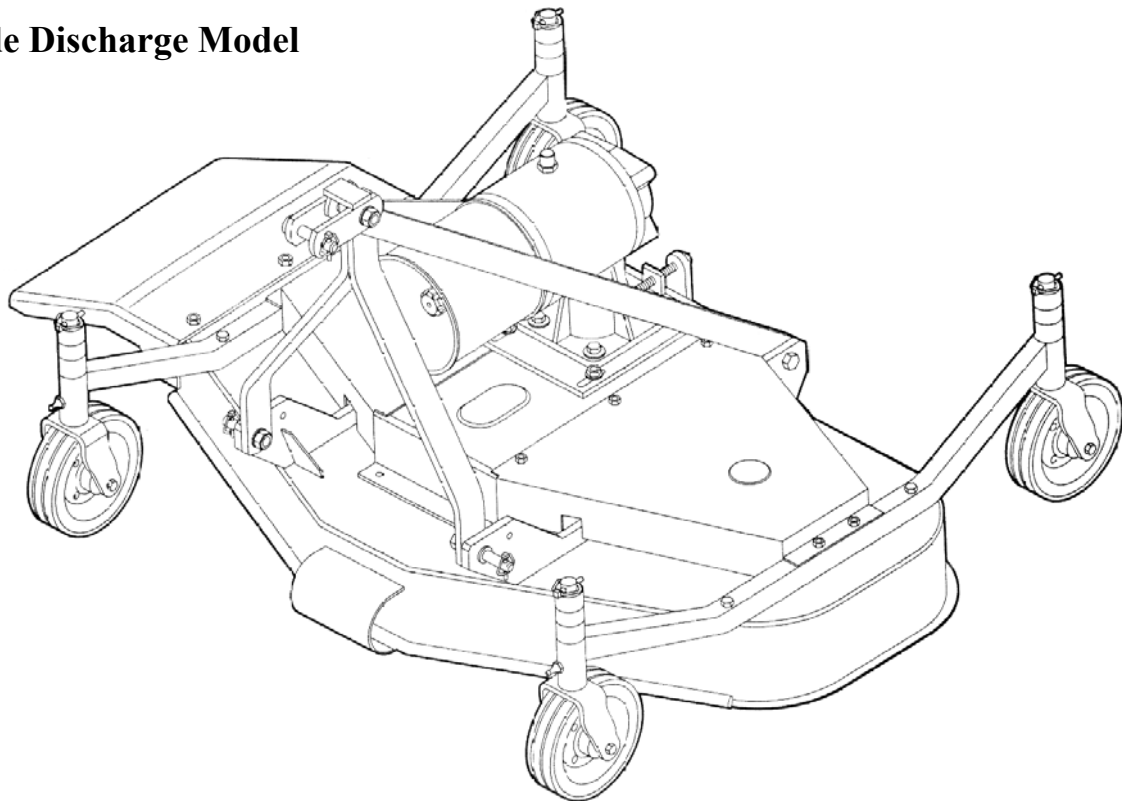
Rear Discharge	Standard
For Reversible Tractors	Standard
Side Discharge	Optional

2.4 Model Variants

Rear Discharge Model



Side Discharge Model



3. SAFETY RULES

3.1 General safety rules:

- It is mandatory to read and follow instructions for the use and maintenance of the machine before carrying out any operation or attempting to move with the machine.
- Improper use or an incorrect move may seriously damage things and people.
- Both the operator and the maintenance fitter must know the mower well, especially regarding dangers resulting from improper use or incorrect repairs.
- Before starting, checks on tractor and mower, must be carried out as regards: functionality, road safety, accident prevention rules.
- Even when using the mower 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.
- Always use tractors with cabs.
- The condition of Blades and all Guards must be checked before beginning the daily work - they must be replaced if damaged or missing.
- 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 Blade rotation has completely stopped.
- Do not enter the working zone of the PTO shaft. It is dangerous to approach the rotating parts of the machine.
- Keep the PTO shaft guard in good order.
- Before starting check the surrounding area for the likely presence of children and/or animals.
- Do not stand or allow others in the range of the operation of the machine.
- 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.
- Before leaving the tractor with the mower attached, proceed as follows:
 1. Disconnect the power takeoff,
 2. Put the machine steadily on the ground (with the hydraulic lift)
 3. Apply the hand brake and, if the ground is steeply sloping, wedge the tractor.

4. Take out the starting key.

- Immediately replace any safety sign, or any missing or damaged decal.

3.2 Safety Rules concerning Road Traffic

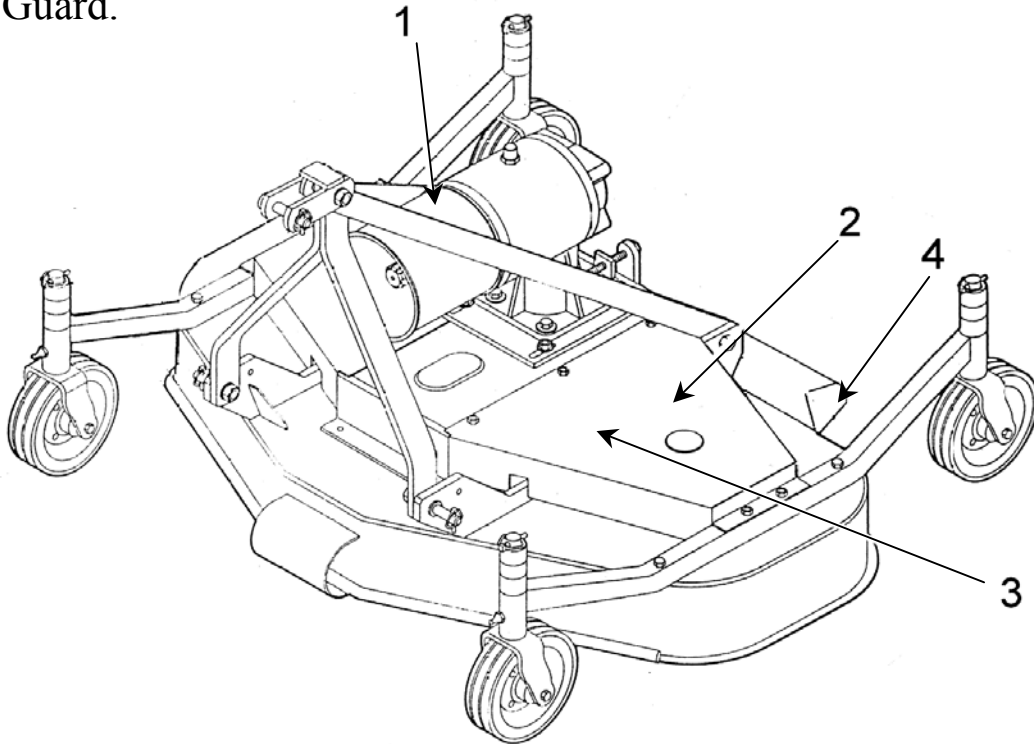
- In transport, reduce speed, especially on bumpy roads. The very weight of the machine may render driving difficult and damage the machine itself.
- Check that the levers that operate the hydraulic lift are locked, to avoid lowering of the machine during transport.
- When driving on public roads, respect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

3.3 Safety Rules during use

- Pay special attention when working with the machine, not to touch fixed objects, such as road drains, walls, shafts, kerbs, guard rails, tracks etc. This could cause breakage of the Blades, which would be thrown at very high speed.
- If wires, ropes or chains should get entangled in the Blades, stop immediately to prevent damage or a dangerous situation; stop the machine and the tractor and remove the starting key. Put working gloves on, clear the entanglement with the aid of pliers or shears. Do not try to disentangle by inverting the rotational direction of the Blades.
- Do not use the machine when vibration is evident, as this would cause breakage and serious damage. Find the cause of the vibration and eliminate it.

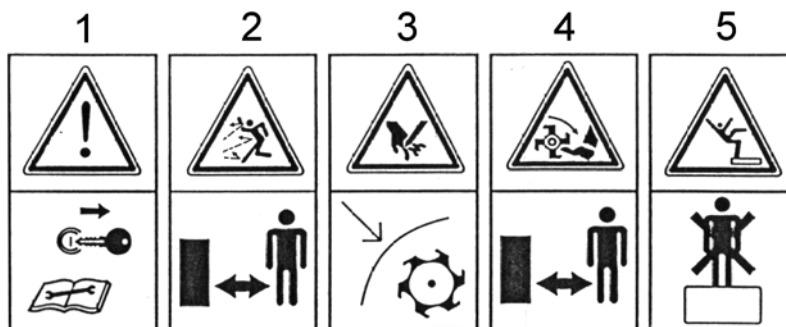
3.4 List of Guards fitted to the Mower

1. PTO Shaft Guard.
2. Belt Guard.
3. Danger and Warning Decals.
4. Rear Guard.



3.4 Description and Location of Safety Decals

1. Switch off tractor, remove key and read instructions carefully before starting servicing or maintenance operations.
2. Keep at a safe distance from the machine to avoid danger from thrown objects.
3. Never operate a machine without guards or attempt to remove guards from a moving machine. Risk of danger to hands
4. Keep at a safe distance from machine. Risk of danger to feet.
5. Never mount or permit others to mount a moving or working machine.



Carefully follow instructions and pay attention to all warnings on Decals – they are there for the safety of you and others.

4. INSTALLATION AND HANDLING INSTRUCTIONS

4.1 Lifting and Unloading.

To handle the machine, use an elevator with a lifting capability suitable to the weight of the machine.

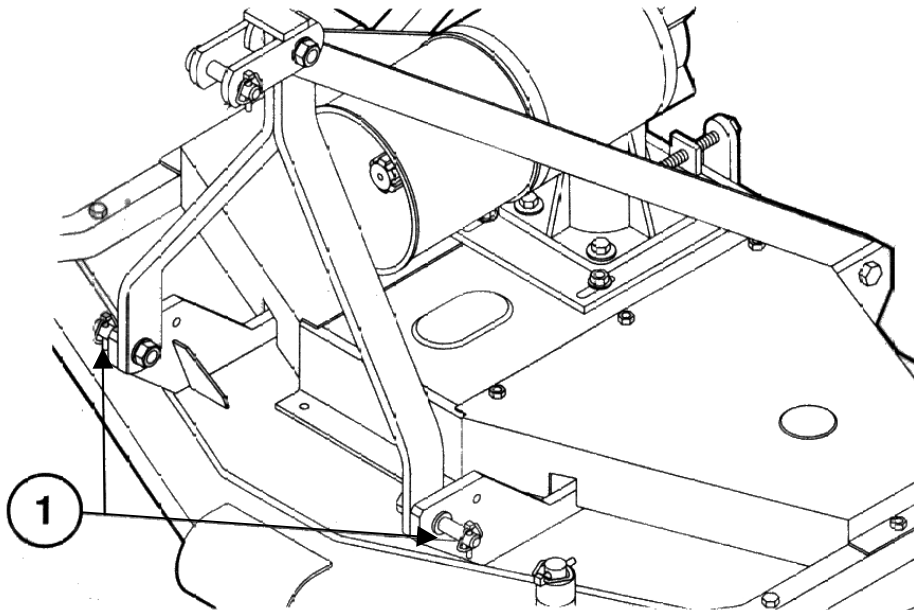
4.2 Attaching and Detaching the Machine.

Before attaching the machine to the tractor for use it is mandatory to:

- Visually check the condition of the machine in general.
- Ensure all guards are fitted correctly and are in good condition.
- Ensure Blades are fitted correctly and are in good condition.
- Grease bearings and any other part as indicated by a decal.
- Check that the number of revolutions and the rotational direction of the PTO correspond to the requirement of the machine.

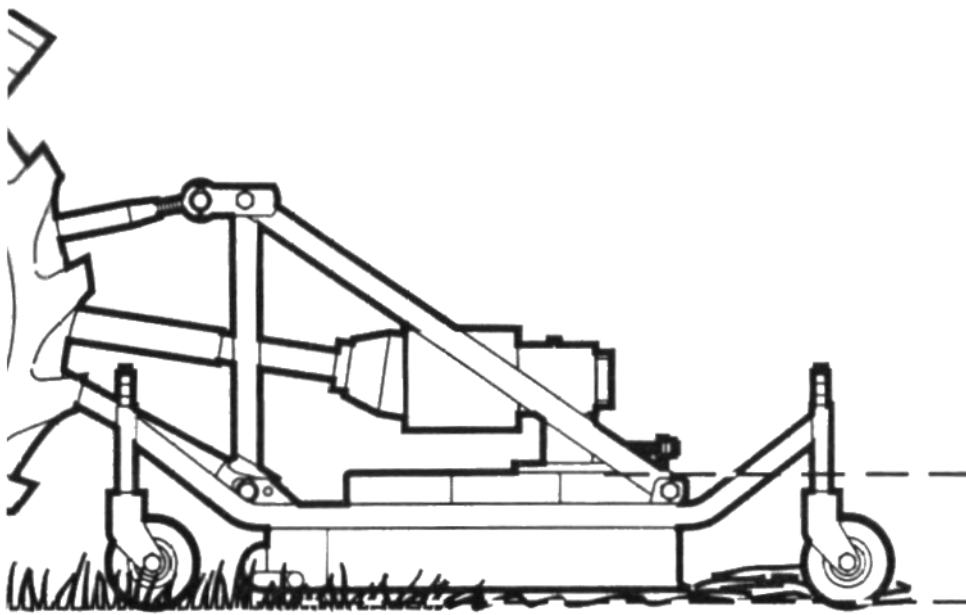
To attach the machine:

- With the tractor and machine on firm level ground, back the tractor up to the machine so that the Lower Draft Links are in alignment with the machines Lower Lift Pins (*see diagram below*).



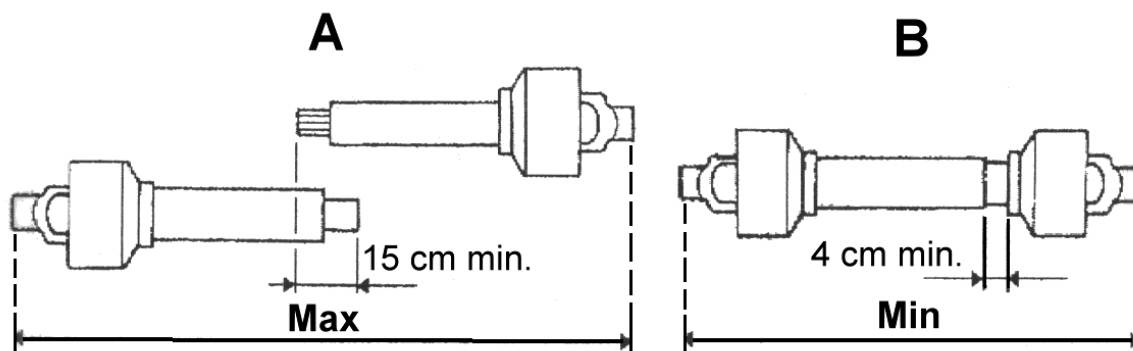
- Place tractor in park, switch off engine and remove key.
- Connect the tractor and Stabilizer Bars to the Lower Lift Pins.
- Lock the parallel links of the power lift with the relative chains and rods on the tractor to prevent the coupled machine from moving in a horizontal direction.

- Fit the Driveline to the power take off on the tractor making sure it has seated in the correct position and that it is free to turn and fixed with the relative latches, both on the tractor and on the machine.
- Connect the Top Link and adjust as necessary to achieve perfect alignment with the ground (*see diagram below*). This is an important adjustment to be carried out in order to achieve as much parallelism as possible between the mower, the tractor PTO and the ground. Time spent getting this adjustment correct will be rewarded by a reduction in the stress levels the power take off is subjected to during normal work and therefore an increase in the life of both the Driveline and the machine.
- Detachment of the machine is a reversal of the above procedure.

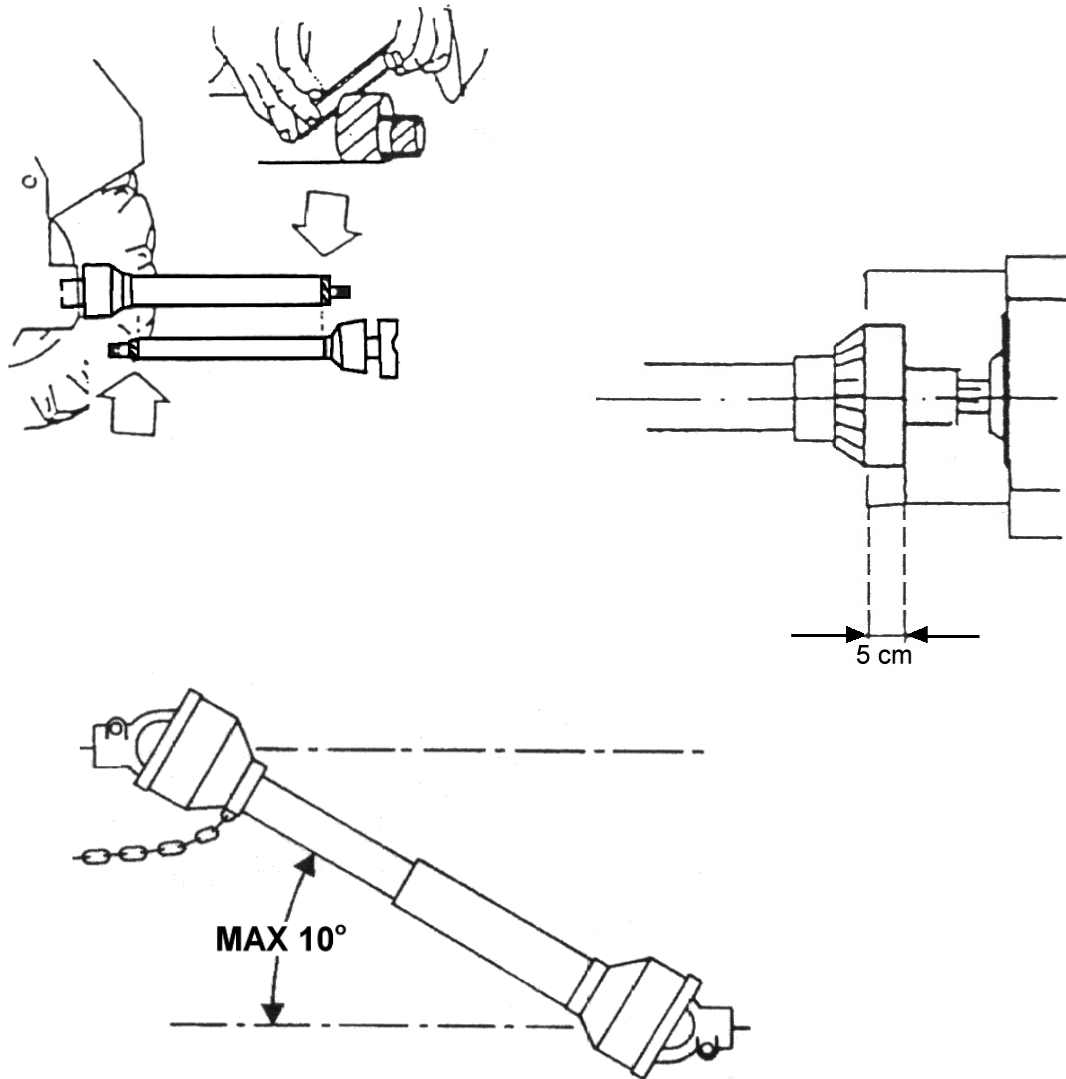


4.3 Fitting the PTO Shaft

Following the instructions in 4.3 assemble the PTO Shaft and check that the overlap is not less than 2/3 of the length. Be sure to keep a 4cm (1⁵/₈") backlash (*see diagram below*).



Should the PTO Shaft require shortening proceed as follows (*see diagrams below*).



4.4 Tractor Stability

Due to the design of Mowers and the work they do, it is essential to ensure tractor stability in order to eliminate any risk of imbalance or overturning.

Lift the machine and check that it does not mount up, if imbalance is detected it should be counteracted by the fitting of suitable ballast weights.

4.5 Parking

Parking of the tractor and machine should be in a safe place away from risk on a firm, flat surface with the mower lowered to the ground to prevent rolling over or falling. Never park up and leave the machine raised. Remove the tractor key before leaving the tractor and machine.

5. ADJUSTMENT AND SETUP

5.1 Cutting Height Adjustment

Adjustment to the cutting height is achieved by means of spacers. The positioning of different thickness spacers at the top, or the bottom of each wheel support determines the final cutting height.

The procedure for adjusting the cutting height is as follows:

- With the mower coupled to the tractor, raise the mower with the power lift to a position that will enable the wheels to be removed.
- Turn off the tractor engine, engage the parking brake, remove and pocket the key.

CAUTION:

The following part of this procedure requires the need to work on a raised machine. It is therefore a wise precaution to place supports under the machine in suitable positions to prevent it from dropping. Ensure that no part of your body is under the machine at any time.

- Working on one wheel at a time, remove the split pin and one or more of the spacers from the top of the wheel support - *the number removed is dependent upon the cutting height required.*
- Remove the wheel from the lower part of its support, refit the spacers previously removed from the top onto the lower section, replace and fix the wheel support with the split pin ensuring that the wheel is free to rotate on its axis.
- Repeat this operation for the remaining wheels.

NOTE:

The machine must be fitted with the same number of spacers in identical positions on all four wheels. The spacers provided for each wheel are of the following thicknesses: 18, 25, 37 & 44mm.

6. USE AND OPERATION

6.1 Starting

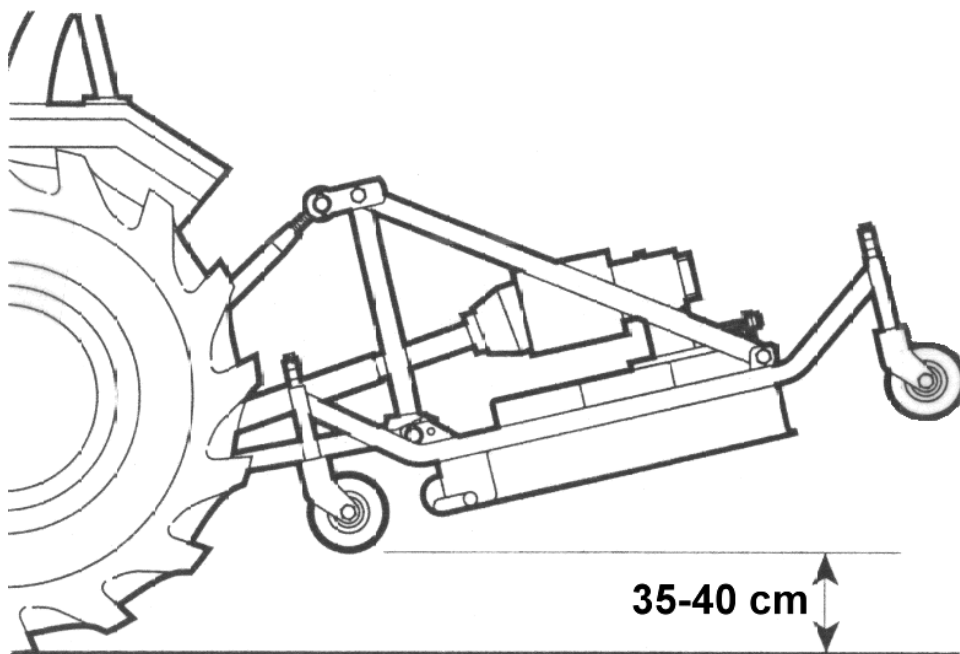
Before using the machine ensure that you, and all other operators, have read and fully understood this entire manual, and that you are familiar with all aspects relating to correct use of this mower with the emphasis on safety.

Before beginning work:

- Check oil level in Gearbox before starting.
- Check all parts for signs of wear or deterioration, replace if worn or damaged.
- Ensure all Guards are in position and in good condition.
- Check PTO rpm and rotational direction corresponds to machine – *refer to Gearbox decal for details.*
- Always engage PTO at low engine rpm to avoid damage to Gearbox and Belts.

6.2 Working

- Adjust the machines cutting height to suit the type of work to be done and the materials to be cut.
- Work at a speed to suit the materials to be cut and the degree of chopping required – *optimum speed range is from 3 to 8 km/h (2-6 mph)*
- Start tractor and raise mower to approx. 35-40 mm (14"-16") above the ground setting it into the work position (*see diagram below*).



- Lower the machine until its wheels touch the ground and begin to work with the PTO engaged.
- After a short distance mowing, check that the grass is being cut to the required height.

IMPORTANT:

Always raise the mower from the ground before reversing to avoid causing damage to the machine.

6.3 Stopping

- Lower machine to the ground.
- Disconnect the PTO.
- Stop the tractor, apply handbrake and remove the key. If the ground is sloping block tractor wheels.

6.4 Transport Position

During transportation of the machine ensure the following:

- Observe all road transport regulations and display all necessary warning signs.
- Reduce speed especially on bumpy or uneven roads as the weight of the machine may render driving difficult and damage the machine itself.
- Always disconnect the PTO.

7. MACHINE MAINTENANCE

All maintenance, cleaning, and repair operations must be carried out with the machine firmly lowered to the ground and detached from the tractor, or with the PTO disconnected, engine off, and the starting key removed.

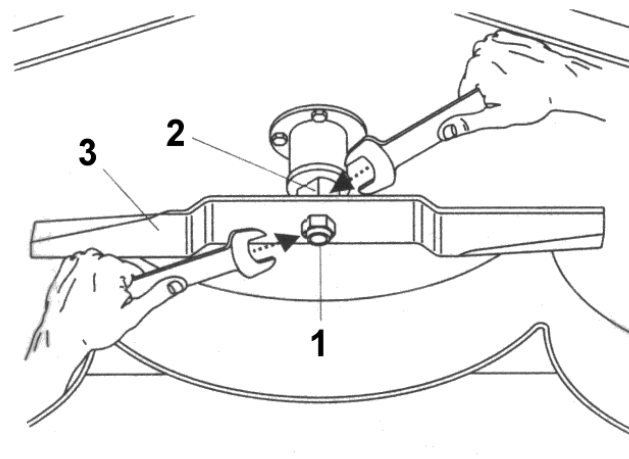
7.1 Initial Checks

After the first two hours of operation from new – or after the fitting of new belts – check the belt tension. Check the level of the oil in the gearbox after the first 10 hours of operation – *the level is correct when it reaches the lower edge of the plug hole at the side of the housing.* If ‘top up’ with oil is required, pour it through the fill hole after having unscrewed the vent plug. Refit the fill plug and the vent plug on completion of this operation.

7.2 Regular Maintenance

Every 8 hours of work

- Ensure the nuts that fix the Blades to the Rotors are firmly torqued – *This should be checked with two wrenches; one positioned on the central pin and one on the central blade-locking nut.*
- Grease the Cardan Shaft.
- Grease the supports of the Blade Shaft – *This requires the removal of the Belt Guards, ensure they are replaced correctly on completion of the operation.*
- Grease the four Wheel Supports.
- Ensure Blades are in good condition, replace worn or damaged blades immediately; *The replacement of blades requires the mower to be raised, and supported in position, with strong, suitable stands. Using two wrenches – one on the central pin (see diagram below) and one on the central blade locking nut – unscrew the latter and replace the blade in the same position with the new one, replace blade locking nut and washer and torque securely.*

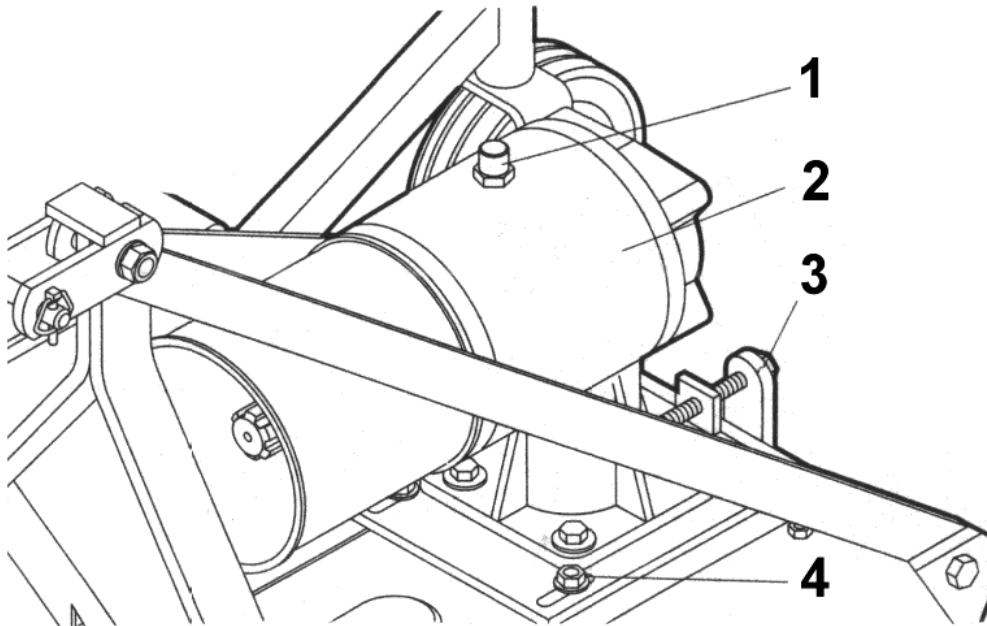


Every 50 hours of work

- Check the Oil level in the Gearbox.

Every 400 hours of work

- Change Oil in Gearbox – *This operation must be carried out by a specialised person as it necessitates the removal of the gearbox from the mower in order to change the oil (see diagram below).*



1. Breather Plug
2. Gearbox Assembly
3. Belt Tension Adjuster
4. Tension Adjustment Slots

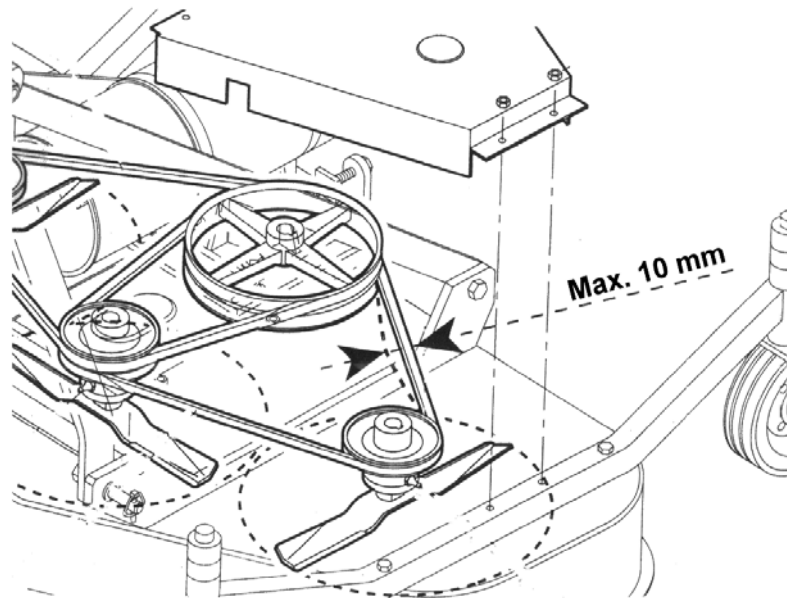
8. TROUBLESHOOTING CHART

PROBLEM	REMEDIES
Cutting height insufficient	<ul style="list-style-type: none"> – <i>Check adjustments.</i> – <i>Reduce forward speed. Tractor power could be insufficient.</i>
Cut too deep	<ul style="list-style-type: none"> – <i>Adjust cutting height.</i> – <i>Increase forward speed.</i>
Grass poorly cut	<ul style="list-style-type: none"> – <i>Adjust cutting height.</i> – <i>Reduce forward speed.</i>
Blades clogged	<ul style="list-style-type: none"> – <i>Clean off all clogging material from the sides of the blades and supports to prevent overheating.</i> – <i>Reduce forward speed.</i>
Mower jumps across ground or vibrates	<ul style="list-style-type: none"> – <i>Foreign bodies wedged between blades.</i> – <i>Blades incorrectly mounted or penetrating ground with blunt edges.</i> – <i>Worn or broken blades.</i> – <i>Shaft deformed due to foreign bodies colliding with central part during work. Contact a specialised workshop.</i>
Mower fails to operate at a regular depth all across its width - <i>for instance it cuts too deeply on the right hand side</i>	<ul style="list-style-type: none"> – <i>In this instance the remedy would be to shorten the right hand arm of the power lift or regulate the position of the right hand wheels.</i>

9. REPLACING PARTS

9.1 Belt Replacement

The replacement of belts must be carried out with the machine placed on the ground, the PTO disconnected and the starting key removed from the tractor. Periodic inspections should be made of the Transmission Belts to check the state of wear; the belt guarding (*two side guards and one central guard*) will require removal to enable inspection. Remove the fixing bolts from the guards and check the belt tension by pressing the belt at the side in the direction indicated by the arrow – the belt must ‘give’ about 10 mm under pressure from the thumb (*see diagram below*).



Belt tension adjustment:

- Loosen the four bolts that fix the Gearbox to the machine.
- Tighten or slacken off the Belt Tension Adjuster Screw in order to obtain the conditions as described above.
- Retighten the four Gearbox fixing bolts.

If the belts show signs of wear they must be replaced as described in the procedure below.

Belt replacement:

- Loosen the four bolts that fix the Gearbox to the machine.
- Loosen the check nut and completely unscrew the Adjuster Screw.
- Remove the old belts and fit new ones in their place – *always change both and replace with belts of the correct type.*
- Retighten the Adjuster Screw to obtain the correct belt tension as described above.

- Retighten the four Gearbox fixing bolts.
- Refit Guards and fix with their bolts.

WARNING: Never operate a machine with its Guards removed.

10. MACHINE DISPOSAL

If a machine is out of order or has reached the end of its working life all of the parts that may cause danger must be made inoffensive. The materials forming the machine that have to undergo a differentiated division are:

- ◆ Steel
- ◆ Mineral Oil
- ◆ Rubber
- ◆ Plastic

These should be disposed of in total respect of the present provisions of law on the subject.

We reserve the right to modify technical data and characteristics of the machine at any time without prior notice.

FOR NOTES

11. Spare Parts Section

For best performance...

USE ONLY GENUINE SERVICE PARTS

To be assured of the latest design improvements purchase your 'Genuine Replacements' from the Original Equipment Manufacturer through your local Dealer or Stockist.

Always quote:

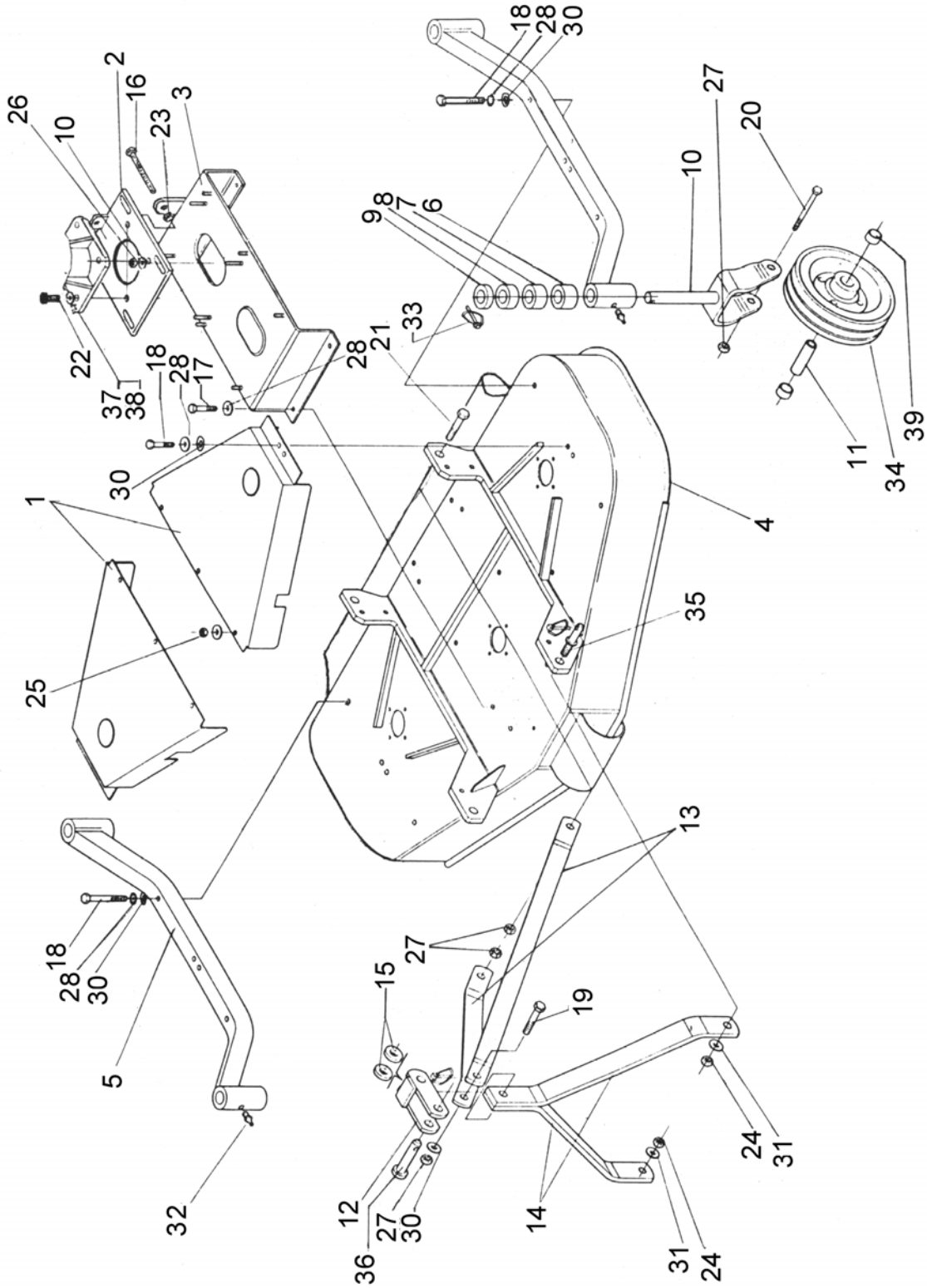
- *Machine Type*
- *Serial Number*
- *Part Number*

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

GK150 - PARTS DIAGRAM 1

Modules:

- 1061955 – REAR MOUNT C/W
- 1061956 – FRONT MOUNT C/W
- 1061957 – FRONT MOUNT AC/W



**GK150 - PARTS LIST**

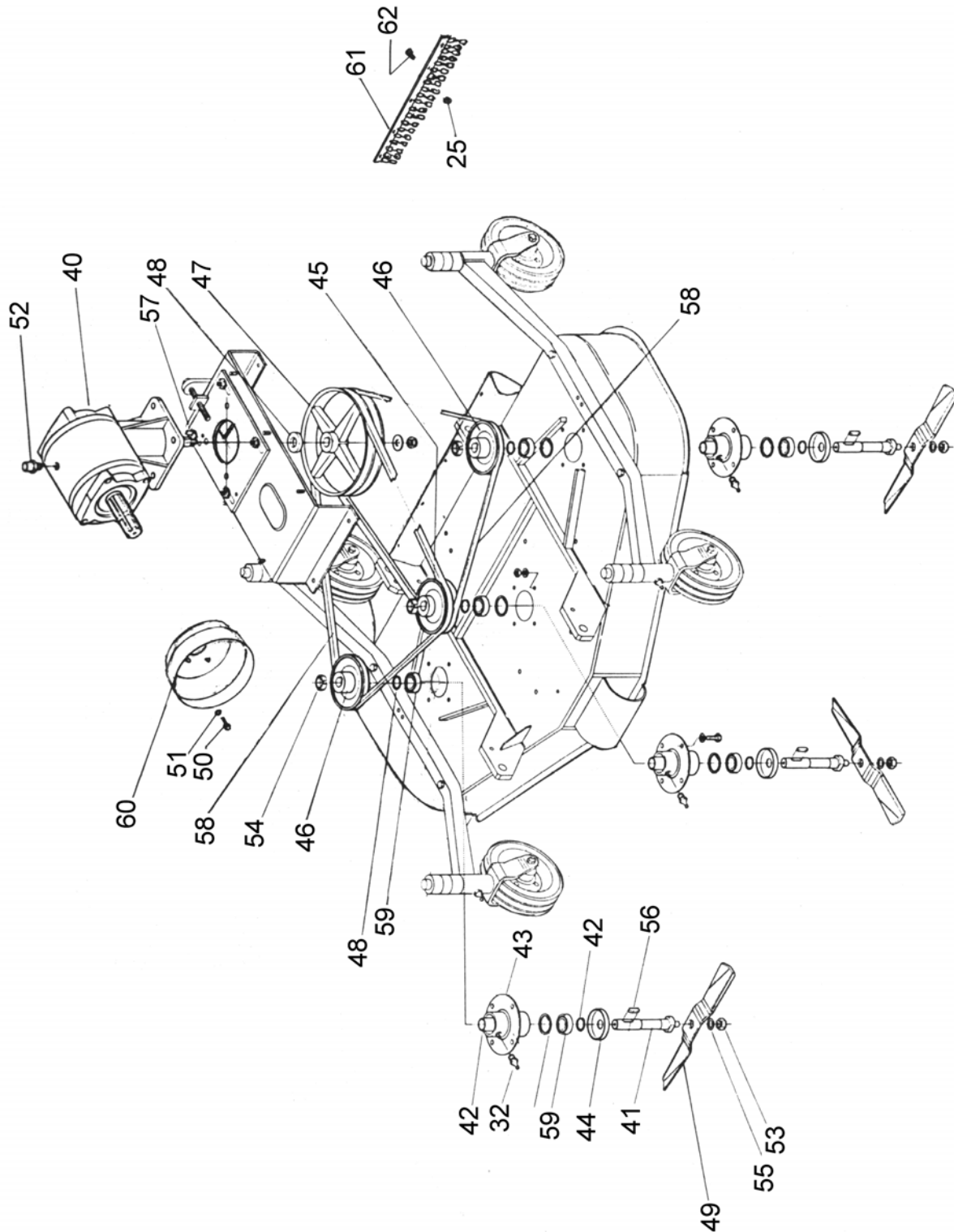
REF.	PART No.	DESCRIPTION
1	1061200	TRANSMISSION COVER L+D 150
2	1061201	GEARBOX MOUNTING PLATE
3	1061202	GEARBOX REST
4	1061203	FRAME 150
5	1061204	WHEEL MOUNT BAR
6	1061205	SPACER 35 x 25 x 32
7	1061206	SPACER 35 x 25 x 25
8	1061207	SPACER 35 x 25 x 10
9	1061208	SPACER 35 x 25 x 6
10	1061209	WHEEL SUPPORT
11	1061210	BUSHING
12	1061211	TOP LINK
13	1061212	TRANSPORT BARS
14	1061213	A-FRAME
15	1061214	SPACER
16	9213165	BOLT M10 x 80
17	9213066	BOLT M12 x 30
18	9213166	BOLT M12 x 80
19	05.292.23	BOLT M12 x 100
20	9213246	BOLT M12 x 120
21	9213086	BOLT M12 x 40
22	15484	BOLT M16 x 25
23	9113005	NUT M10
24	9113008	NUT M20
25	9143004	SELF-LOCKING NUT M8
26	9143005	SELF-LOCKING NUT M10
27	9143006	SELF-LOCKING NUT M12
28	9100106	PLAIN WASHER M12
29	9100105	WASHER M10
30	9100106	WASHER M12
31	9100108	PLAIN WASHER M20
32	10394	GREASE NIPPLE M6 x 1
33	9501507	SPLIT PIN D6
34	1061215	WHEEL 208 x 80
35	1061237	LINKAGE PIN D22
36	1061238	PIN 19/25
37	0100106	PLAIN WASHER M16
38	10222	WASHER M16

GK150 - PARTS DIAGRAM 2



Modules:

- 1061955 – REAR MOUNT C/W
- 1061956 – FRONT MOUNT C/W
- 1061957 – FRONT MOUNT AC/W

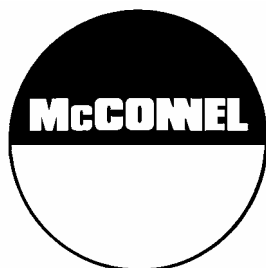


**GK150 - PARTS LIST Continued**

REF.	PART No.	DESCRIPTION
39	1061216	SPACER 3/4" x 17
40	1061217	GEARBOX (540) - CLOCKWISE
	1061240	GEARBOX (540) - ANTI-CLOCKWISE
41	1061218	SHAFT
42	1061219	SPACER
43	1061220	BLADE ROTOR SUPPORT
44	1061221	DUST COVER
45	1061222	PULLEY 130/2
46	1061223	PULLEY 130/1
47	1061224	PULLEY 190/2
48	1061225	SPACER
49	1061226	BLADE L=510
50	11624	BOLT M8 x 15
51	9100104	WASHER M8
52	1061227	OIL BREATHER PLUG
53	1061234	SELF-LOCKING NUT M18 x 1.5
54	1061235	SELF-LOCKING NUT M25 x 1.5
55	1061236	WASHER M18 x 1.5
56	1061228	KEY 8 x 7 x 35
57	1061229	KEY 10 x 8 x 40
58	1061230	BELT B68 - 150
59	1061231	BEARING
60	1061232	CONE
61	1061233	CHAINGUARD 150
62	9313044	BOLT M8 x 20
63	7490250	PTO SHAFT - <i>not illustrated</i>

MACHINE DECALS - *not illustrated*

64	1290255	DECAL - McCONNEL
65	09.821.08	DECAL - SAFE WORKING DISTANCE
66	09.821.10	DECAL - KEEP NUTS TIGHT
67	09.821.15	DECAL - READ INSTRUCTION BOOK
68	09.821.17	DECAL - UNSUPPORTED MACHINE
69	09.821.18	DECAL - THROWN DEBRIS DANGER
70	09.821.20	DECAL - PTO SHAFT DANGER
71	09.811.01	DECAL - 540 RPM SPEED
72	09.810.01	DECAL - GREASE 8 HOURS



McConnel Limited, Temeside Works, Ludlow, Shropshire SY8 1JL. England.
Telephone: 01584 873131. Facsimile: 01584 876463. www.mcconnel.com