# Spearhead

# Pasture Topper 9ft & 280-65



Edition 6.1 - April 2014 Part no. 8999013

# CE Declaration of Conformity, Conforming to EU Machinery Directive 2006/42/EC

We, Spearhead Machinery Ltd, Green View, Salford Priors, Evesham, Worcestershire, WRII 8SW hereby declare that:

Product	
Product Code	
Serial No	
<i>Typ€</i>	

Manufactured by: Alamo Manufacturing Services (UK) Limited, Station Road, Salford Priors, Evesham, Worcestershire, WRII 85W

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 I4I2I-I (2007) Safety of Machinery Risk Assessment,
   Part I: Principles Part 2: Practical Guide and Examples of Methods.
- BS EN ISO I2100-I (2010) Safety of Machinery Part I: Basic Terminology and Methodology Part 2: Technical Principles.
- BS EN 349 (1993) + AI (2008) Safety of Machinery Minimum Distances to avoid the Entrapment of Human Body Parts.
- BS EN 953 (1998) Safety of Machinery Guards General Requirements for the Design and Construction of Fixed and Movable Guards.
- BS EN 982 (1996) + AI (2008) Safety Requirements for Fluid Power Systems and their Components. Hydraulics.

The EC Declaration only applies if the machine stated above is used in accordance with the operating instructions.

Signed

(On behalf of Spearhead Machinery Ltd)

**Status** General Manager

*Date* 01/10/2008

## **Contents**

General information	
CE Declaration	1
Introduction	3
Safety	
Machine safety stickers	4
Safety Recommendations	
Installing Machine	
Attaching to the Tractor	6
Setting up & Adjustment	
Operation	
Transportation	
Important Safety	
,	
Servicing & Maintenance	
Torque Settings	10
Daily/Every 8 Hours	
Every 20 Hours	
Regularly	
Blades	12
Skids	
Storage	
Spearhead Warranty	
Parts Book	
Parts Book Contents	16

#### Introduction

The Spearhead Pasture Topper is a very robust high capacity Rotary Cutter that is easy to operate and maintain. To ensure trouble-free operation this manual should be carefully studied.

#### **Important**

On delivery of your machine, check that the Dealer has completed the PDI form and ensure the Warranty Registration form is completed and returned.

#### Important Note

The information contained in this manual is correct at the time of publication. However, in the course of constant development, changes in specification are inevitable. Should you find the information given in this book different to the Machine it relates to please contact the "After Sales Department" for advice.

Please ensure that this manual is handed to the operator before using the machine for the first time. The operator must fully understand the contents of this manual before using this machine.

(If the machine is resold the Manual must be given to the new owner.)

### Safety Stickers



#### Warning

Stay clear of mower blade as long as engine is running.



#### Warning

Danger – flying objects keep safe distance from the machine as long as the engine is running.



#### Warning

Shut off engine and remove key before performing maintenance or repair work.



#### Warning

Check all nuts are tight every 8 hours.



#### Warning

Carefully read operator's manual before handling this machine. Observe instructions and safety rules when operating.

#### Safety Recommendations

Never operate the machine with other people present, as it is possible for debris, including stones, to be discharged from the front and rear of the main deck.

Always ensure all safety guards are in place and all tractor windows closed.

Never allow an inexperienced person to operate the machine without supervision.

Never attempt any maintenance or adjustment without first disengaging the P.T.O. lowering to the ground, stopping the tractor engine and applying the tractor parking brakes. Before leaving the tractor at any time, always be sure the P.T.O. is disengaged and the rotors have stopped spinning.

Check that there are no damaged or lost parts. Particular attention should be given to the blades to ensure they are not damaged, cracked or missing. **Never** operate with broken or missing blades.

Never stop the engine with the P.T.O. engaged.

Always operate P.T.O. at recommended speed.

Never attempt to use the machine for any purpose other than that it was designed for.

Ensure that all warning labels are always visible and that they are not damaged, defaced or missing.

Where applicable, check condition of tyres and that the wheel nuts are tight.

During transport, ensure linkage stabilisers are fully tightened and observe public highway regulations.

Do not start the machine until you fully understand the operation and safety precaution requirements. Always ensure the operators are proficient with the operation of this type of machine.

#### Attaching to the Tractor

Fit the machine to the tractor in the standard way, ensuring the correct match of linkage (category 2 linkage pins). Check that the top link is in good order and threads are well lubricated. Use stabilizers to take any free movement out of lower link arms.

Before fitting the machine to the tractor linkage you should ensure there is sufficient front weight to ensure the front wheels are always in contact with the ground. This is most important for safe transport and stability when turning on slopes.

Before fitting the P.T.O. for the first time, it may be necessary to adjust the length. There should be maximum engagement of the sliding tubes without bottoming at the shortest operation position. To check, first connect the mower to the tractor.

Pull the P.T.O. shaft apart and connect to the tractor P.T.O. output shaft and the gearbox input shaft. Hold the half shafts next to each other in the shortest working position. If necessary, shorten the inner and outer guard tubes equally (Fig. 1).

Shorten the inner and outer sliding profiles by the same length as the guard tubes. File all sharp edges and remove burrs. Grease sliding profiles.

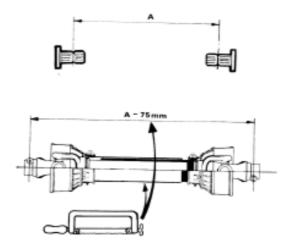


Fig 1 – Shortening the PTO drive shaft

- a) Check shaft tube surplus length
- b) Cut surplus length from shaft tubes. File sharp edges and remove burrs
- c) Shorten shield tubes to the same length. Grease inner shaft tube and install shield

To fit the PTO, first clean and grease press pins on the yoke and simultaneously push the PTO drive shaft on to PTO shaft of the tractor until pins engage. The shear bolt should be nearest the gear box.

The PTO shaft is fitted with a non-rotating safety guard. It should be secured to the machine and tractor with the two retaining chains provided.

#### Setting Up & Adjustment

#### Height

Cutting height adjustment is achieved by raising or lowering the two outer skids. Lowering the skid produces a longer cut, raising the skid produces a shorter cut. Always set to equal hole settings from front to rear and side to side.

#### Offset

The linkage 'A' frame can be unbolted and slid either side of the centre position to offset the machine. There are five pre-drilled 16mm holes both front and rear of the machine suitable for mounting in the centre and in offset positions. If a variation to the standard offset is required – particularly for orchard work – it is possible for more holes to be drilled to suit a desired offset position.

This operation must be carried out by a skilled agricultural engineer, familiar with this type of work.

If castor wheels are to be fitted after the machine has left the factory, again extra holes may need to be drilled. After any adjustment to the machine, check within one hour of work that all nuts and bolts are tight. This period allows for bedding in.

#### Front Linkage Mounting

Attaching to the front linkage is carried out in the same manner as rear linkage fitting, expect the front P.T.O. rotation. As the tractor output shaft may turn either clockwise or anti-clockwise. To compensate for this, the Spearhead Pasture Topper has a bi-directional drive gearbox by remounting the gearbox through 180°, i.e. back to front, it will correct the direction of the cutting blades.

When the Spearhead Pasture Topper is used on the front linkage, it is essential to use the castor height control wheels which must be set 50mm lower than the skids. This is to avoid straining or even seriously damaging the side skids.

Before operating the machine on the front linkage, be sure the operator is fully aware of all the above procedures. Contact your Spearhead Dealer or Spearhead Service Department if there is any doubt.

#### **Operation**

Engage the PTO only when the tractor engine is at low revs to prevent shock damage to machine. Slowly increase the engine revs to achieve the standard 540 r.p.m. P.T.O. 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 all its weight on the skids, allowing the machine to follow the contours of the ground and ensuring there is sufficient slack in the wire rope. 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 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 first priority.

When operating, particularly in confined areas, it is possible to cut going backwards but it is advisable to slightly raise the machine, particularly if in dense growth where there is a risk of hitting hidden solid obstacles obscured by dense undergrowth.

Adjustable baffle plates on the underside of the mower are designed to improve finish in a wide range of cutting conditions. When mowing short grass, in dry conditions, it is advisable to set baffles fairly low giving a finer mulch and better spread. However, if in more challenging conditions i.e. wet grass or long and thick grass, it is advisable to raise baffle plates, certainly the front pair, which will allow the grass to pass through the machine quicker and reduce striping.

The correct setting of the baffle plates can greatly improve the machine's performance.

#### **Transportation**

Please observe Public Highway Regulations concerning the towing implements and securely attach a registration and lighting board. Take care to slow when traveling over rough ground and avoid bouncing the machine linkage, causing unnecessary strain.

#### Machine Protection

To prevent gearbox damage, the PTO is fitted with a shear bolt. When cutting in extreme conditions where solid objects are likely to be found, it is recommended the operator reduces the engine revs to allow the blades to pivot more easily when striking solid objects.

#### Servicing & Maintenance



#### Warning

Never carry out any servicing or maintenance work without first disengaging the PTO and stopping the tractor.

#### 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 carried on the tract 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

It is imperative that the following checks are carried out in order not to invalidate your warranty. These are carried out before the first operation, after the first hour, then after 4 hours. The checks are:

Wheel nuts and tyre pressure (where applicable)

Gearbox bolts

Oil is in the gearbox at the correct level

Blade bolts are fully tightened and in particular the castle headed nuts on the blade rotors

Grease PTO and wheels (where applicable)

After the first 50 hours drain and replace the gearbox oil. Replace with EP90 gear oil

#### Torque Settings

The Torque figures given are recommended maximum settings only

Size:	Tensile strength:	Description:	Torque setting: Nm.
M16	8.8	Gearbox bolts	280
M16	8.8	Blade carriers	280
M24	8.8	Blade bolts	950
		Wheel nuts	270

#### Daily/Every 8 Hours

- Grease all grease points, including PTO and height control wheels when applicable
- 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 dip stick provided with each gearbox
- Dismantle and clean PTO sliding surfaces and re-grease. Grease universal joints (Fig. 2)
- Check condition of the drive belts, ensuring they are aligned and properly tensioned to avoid any unnecessary belt wear. To tension the belts, remove the
- Check blade retaining bolt and nut for tightness, 160lb.ft 200Nm.
- Never operate with any blades missing. This will cause severe vibration and lead to rapid bearing wear and quickly cause the chassis to crack

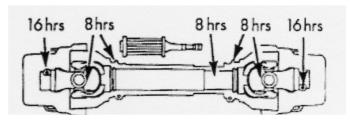


Fig. 2 – PTO drive and cross journal grease points

#### Every 20 Hours

Grease PTO inner tube and push pins (Fig 2)

#### Regularly

- 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 (part number 2777501). First remove the roll pin, select the correct size socket and fully tighten the nut (torque setting 180 lbs/ft). When replacing the roll pin, do not slacken the nut to align the hole, always tighten. Failure to regularly check this nut will result in serious wear to the blade spindle, which is expensive to repair. If over tightened, the pulley hub roll pin will shear causing damage.
- Inspect gearbox seals for leaks, replace if weeping.
- 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

Remember the Spearhead Pasture Topper is designed to withstand hard daily use and with a little care and attention will give many years of trouble free service. In order not to invalidate the warranty and to avoid problems use only genuine parts and make sure the machine is not driven at a speed in excess of 540RPM on the PTO.

#### 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 and 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 be replaced when new blades are to be 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 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 expected. To provide extra protection and to prolong 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.

#### **Storage**

Before storing away, thoroughly wash the machine off, removing all traces of grass and dirt. Great care must be taken when washing with high-pressure hoses, do not hold the water jet close to the paintwork. Do not use steam cleaners and be sure to remove all detergents to avoid any discoloring or damage to paint. Grease all grease points until fresh grease shows. Store PTO shaft and drive belts in a dry place.

#### The Spearhead Warranty

Spearhead warrants that the Spearhead machine referred to in the Warranty Registration Form will be free from defects in materials and workmanship for a period of 12 months from the date of sale. This warranty does not affect your statutory rights, but merely adds to them. Should you have a problem within 12 months from the date of sale please contact your original Spearhead dealer, or Spearhead's Service Department. Any part found to be defective during this period would be replaced or repaired, at Spearhead's discretion, by the dealer or a Spearhead Service Engineer.

#### Spearhead Warranty Conditions

- 1. The Warranty Registration Form must be completed and returned to Spearhead within 30 days of the date of sale.
- This warranty does not cover defects arising from fair wear and tear, willful damage, negligence, misuse, abnormal working conditions, use in competition, failure to follow Spearhead's instructions (oral or written, including all instructions and recommendation made in the Operator's Manual) or alteration or repair of the machinery without Spearhead's approval.
- The machinery must have been serviced in accordance with the Operator's Manual and the Service Log must have been kept up to date and made available to the dealer should service, repair or warranty work be undertaken.
- 4. This warranty does not cover claims in respect of wearing parts such as blades, flails, paintwork, tyres, belts, hydraulic hoses, bearings, bushes, linkage pins, top links, ball ends unless there is a manufacturing or material defect or the cost of normal servicing items such as oils and lubricants.
- 5. This warranty does not cover any expenses or losses incurred whilst the machinery is out of use for warranty repairs or parts replacement.
- 6. This warranty does not extend to parts, materials or equipment not manufactured by Spearhead, for which the Buyer shall only be entitled to the benefit of any such warranty or guarantee given by the manufacturer to Spearhead. Only genuine Spearhead replacement parts will be allowable for warranty claims.
- 7. All parts replaced by Spearhead under warranty become the property of Spearhead and must be returned to Spearhead if Spearhead so request. Such parts may only be disposed of after a warranty claim has been accepted and processed by Spearhead.
- 8. Spearhead is not liable under this warranty for any repairs carried out without Spearhead's written consent or without Spearhead being afforded a reasonable opportunity to inspect the machinery the subject of the warranty claim. Spearhead's written consent must, therefore, be obtained before any repairs are carried out or parts replaced. Use of non-Spearhead parts automatically invalidates the Spearhead Warranty. Failed components must not be dismantled except as specifically authorized by Spearhead and dismantling of any components without authorization from Spearhead will invalidate this warranty.
- 9. All warranty claims must be submitted to Spearhead on Spearhead Warranty Claim Forms within 30 days of completion of warranty work.

Using the machine implies the knowledge and acceptance of these instructions and the limitations contained in this Manual

#### Extended Warranty - UK Only

As an extension to the 12-month warranty set out above, Spearhead will provide an additional 12 month warranty cover subject to the Spearhead Warranty Conditions above and the Extended Warranty Conditions below.

#### **Extended Warranty Conditions**

- 1. The extended warranty applies to gearboxes only. It does not apply to other parts, to consumables such as lubricants, or to labour charges
- 2. The machinery must have had an annual service carried out by an Authorized Spearhead Dealer or a Spearhead Service Engineer within 1 month of the first anniversary of the date of sale and the Service Report form must have been completed and stamped by the servicing dealer or Spearhead Service Engineer and sent to Spearhead within 14 days after the first annual service.
- The extended warranty does not cover costs of transportation of the machinery to or from the dealer or Spearhead or the call out costs or traveling expenses of on-site visits.

#### Transfer of Warranty

The Spearhead warranty may be transferred to a subsequent owner of the machinery (for use within the UK) for the balance of the warranty period subject to all of the warranty conditions and provided that the Change of Owner form is completed and sent to Spearhead within 14 days of change of ownership.

Spearhead reserves the right to make alterations and improvements to any machinery without notification and without obligation to do so.

# Pasture Topper 9ft & 280-68

**Parts Book** 

Edition 6.0 - October 2008

### Parts Book Contents

Ordering Your Parts	17
Main Deck	18
Blades and Carrier	20
Pulleys	
Gearbox	2/
P.T.O. Shaft	
Decals	.)5

#### Ordering Your Part's

When ordering parts please refer to your parts list to help your dealer with your order.

Part number and quantity
Description
Machine model number
Serial number of the machine
Delivery instructions (e.g. next day).

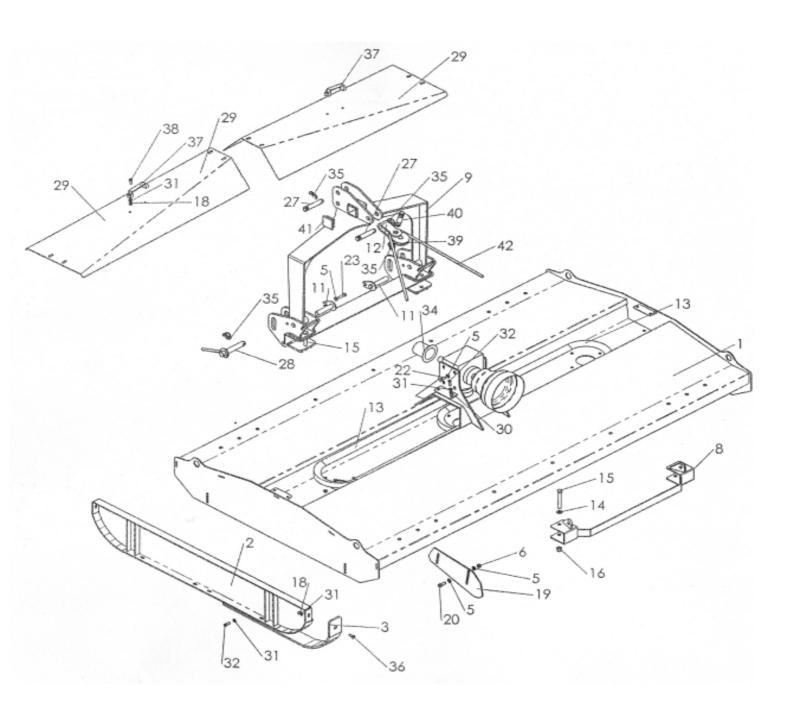
Delivery is normally via carrier direct to your dealer. Please check with your dealer for stock availability and arrangement of dispatch. Ensure you or your dealer has sufficient cover for parts requirement outside factory hours.

When ordering your seal kits please quote both codes stamped on the base of the cylinder.

#### Important Note

The information contained in this manual is correct at the time of publication. However, in the course of constant development, changes in specification are inevitable. Should you find the information given in this book different to the machine it relates to, please contact the "After Sales Department" for advice.

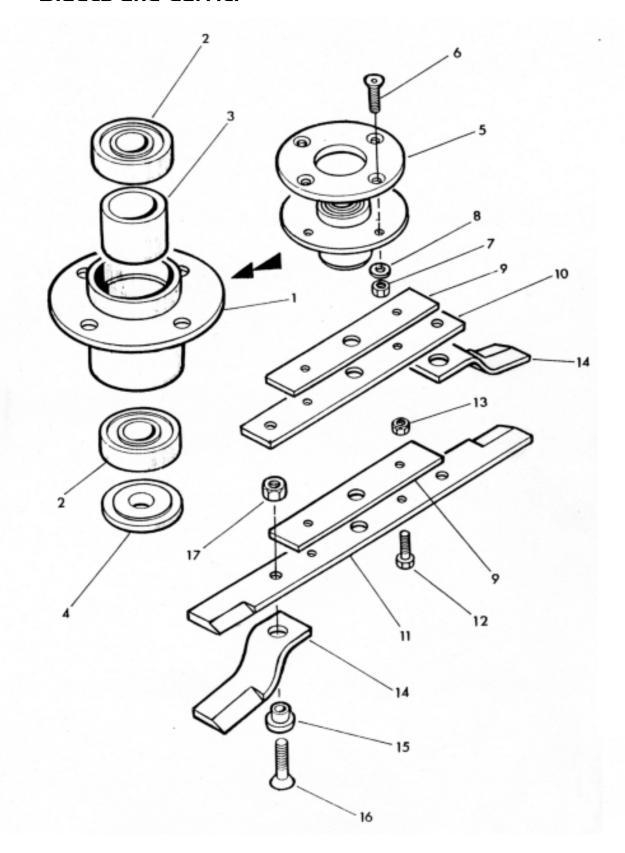
# Main Deck



## Main Deck

REF NO.	PART NO.	QTY.	DESCRIPTION		
1	1777601A	1	DECK		
2	1777610A	2	OUTER SKID		
3	1777512	2	SKID		
4	2770381	4	M12 X 70 BOLT		
5	2770436	4	M12 FLAT WASHER		
6	2770417	4	M12 NYLOCK		
8	1777614	1	WIRE ROPE BRACKET		
9	1777613A	1	HEADSTOCK		
10	1777612	1	LINKAGE FRAME		
11	1777611	2	PEAR PIN: 25.4 X 115 mm		
12	1560120	1	PULLEY BRACKET		
13	4770871	2	BELT		
14	2770454	4	M16 FLAT WASHER		
15	2770399	2	M16 X 120 BOLT		
16	2770447	2	M16 NYLOCK		
17	2770396	12	M10 X 35 BOLT		
18	2770412	12	M10 NYLOCK		
19	1777591	2	BAFFLE PLATE		
20	2770535	4	M12 X 35 BOLT		
21	5770010	1	GEARBOX		
22	2770420	8	M12 X 30 BOLT		
23	2770443	2	M12 X 40 BOLT		
24	5770105	1	CONE		
25	2770437	4	M10 REPAIR WASHER		
26	2770418	4	M10 X 20 BOLT		
27	6310203	2	TOP LINK PIN		
28	6310208	2	CRANKED PIN		
29	1777603	2	BELT GUARD		
30	2770203	8	RIVNUT		
31	2770434	8	M10 FLAT WASHER		
32	2770421	8	M10 X 30 BOLT		
33	2770467	2	M6 ST GREASE NIPPLE		
34	5770028	1	SHAFT COVER		
35	6310206	4	LYNCH PIN		
36	2770520	12	M10 X 30 SKT CSK SCREW		
37	8777513	2	PLASTIC HANDLE		
38	2770612	4	M8 X 25 SKT CAP SCREW		
39	1560121	1	WIRE ROPE PULLEY		
40	2770413	1	M24 X 75 BOLT		
40	2770414	1	M24 NYLOCK		
40	2770464	2	M24 FLAT WASHER		
41	8777516	2	SQUARE PLASTIC INSERT		
42	6770938	1	WIRE ROPE		

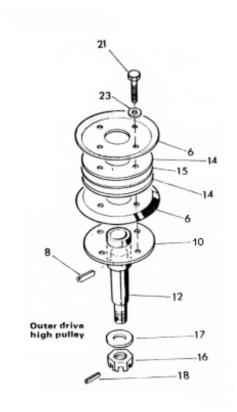
## Blades and Carrier

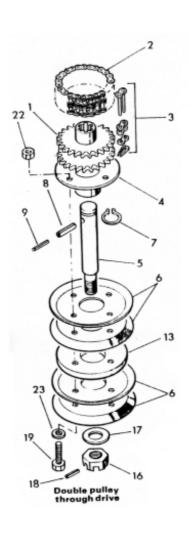


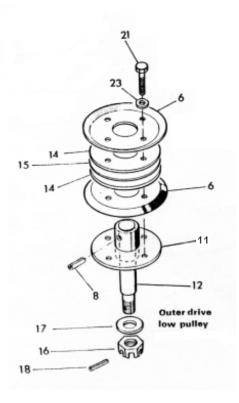
## **Blades and Carrier**

REF NO.	PART NO.	QTY.	DESCRIPTION
1	1777506	3	ROTOR HUB
2	4770872	6	BEARING
3	1777503	3	SPACER
4	1777502	3	BEARING SHIELD
5	1777507	3	ROTOR HUB PLATE
6	2770398	12	M12 X 40 SKT CSK SCREW
7	2770417	12	M12 NYLOCK
8	2770436	12	M12 FLAT WASHER
9	7770598	3	BACKING PLATE
10	7770600	2	OUTER BLADE CARRIER
11	7770599	1	CENTRE BLADE CARRIER
12	2770421	6	M10 X 30 BOLT
13	2770412	6	M10 NYLOCK
14	7770597	6	BLADE
15	7770596	6	BLADE BUSH
16	2770461	6	M16 X 45 SKT CSK SCREW
17	2770447	6	M16 NYLOCK

# Pulleys



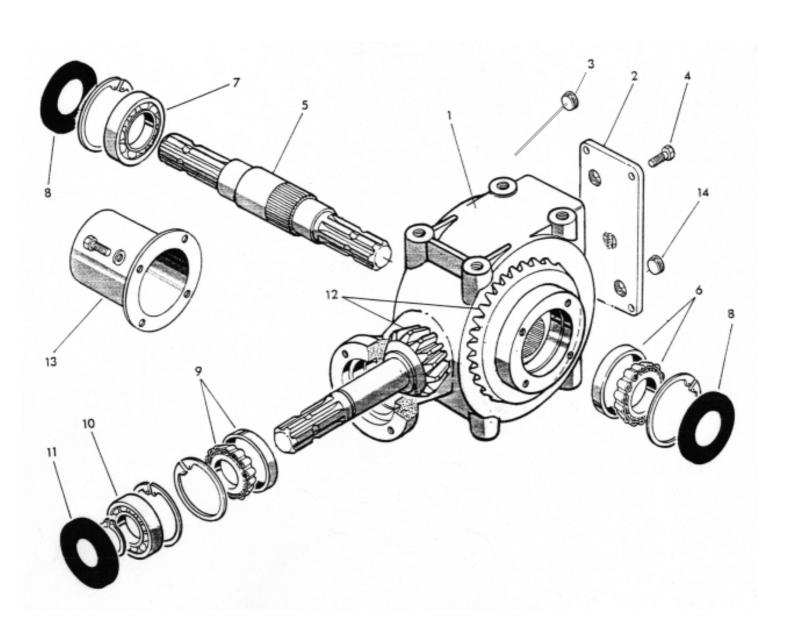




# Pulleys

REF NO.	PART NO.	QTY.	DESCRIPTION
1	1777511	1	FLOATING SPROCKET SPLINE
2	4770850	1	DUPLEX CHAIN
3	4770851	1	DUPLEX CONNECTOR
4	1777510	1	CENTRE PULLEY HUB
5	1777505	1	CENTRE SPLINE
6	1777604	6	PULLEY DISC
7	2777512	3	CIRCLIP
8	2770479	3	ROLL PIN
9	2770529	3	ROLL PIN
10	1777509	2	LOWER PULLEY HUB
11	1777508	2	UPPER PULLEY HUB
12	1777504	2	OUTER SPINDLE
13	1777513A	2	12mm PULLEY SPACER
14	1777605	4	2mm PULLEY SPACER
15	1777520	2	4mm PULLEY SPACER
16	2777501	3	LH NUT
17	2770470	3	M30 WASHER
18	2770477	3	SPLIT PIN
19	2770424	4	M12 X 70 BOLT
20	2770421	4	M10 X 30 BOLT
21	2770443	8	M12 X 40 BOLT
22	2770536	8	M12 FULL NUT
23	2770436	8	M12 FLAT WASHER

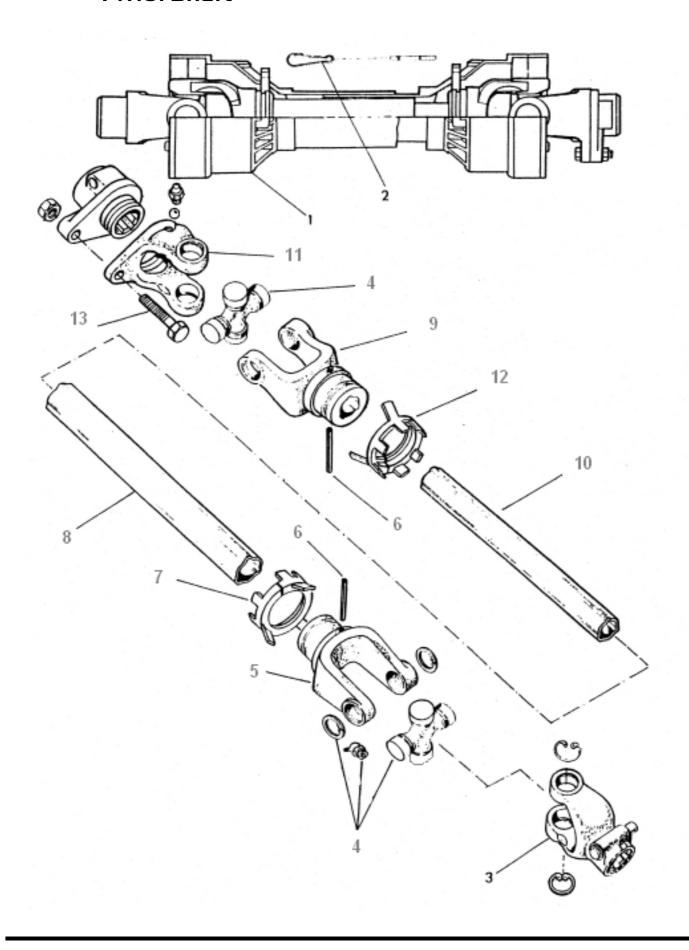
## Gearbox



## Gearbox

REF NO.	PART NO.	QTY.	DESCRIPTION
1	5777200	1	CASING
2	5777201	1	COVER
3	5777210	1	DIPSTICK
4	2770402	4	M8 X 20 BOLT
5	5777202	1	GEAR WHEEL SHAFT
6	4770660A	1	BEARING
7	4771620	1	BEARING
8	4771506	2	OIL SEAL
9	4770658	1	BEARING
10	4771600	1	BEARING
11	4771124	1	OIL SEAL
12	5777209	1	GEARWHEEL & PINION
13	1777602	1	REAR SHAFT GUARD
14	5777208	1	PLUG
15	2771129	-	CIRCLIP
16	2771108	-	CIRCLIP
17	2777516	-	CIRCLIP

P.T.O. Shaft



## P.T.O. Shaft

REF NO.	PART NO.	QTY.	DESCRIPTION
	5770082		P.T.O. SHAFT
1	5772262	1	COMPLETE GUARD
2	5771020	2	RETAINING CHAIN
3	5772240	1	Q/R YOKE - 6 SPLINE
4	5772242	2	CROSS JOURNAL
5	5772254	1	OUTER TUBE YOKE
6	2770525	2	ROLL PIN
7	5770080	1	RETAINING COLLAR (OUTER)
8	5772248	1	OUTER TUBE (1M)
9	5772244	1	INNER TUBE YOKE
10	5772250	1	INNER TUBE (1M)
11	5772284	1	SHEAR BOLT YOKE
12	5770081	1	RETAINING COLLAR (INNER)
13	2772285	1	SHEAR BOLT

### **DECALS**



Recommended P.T.O. speed 540 r.p.m.























Spearhead Machinery Ltd Green View Salford Priors Evesham Worcestershire WR11 8SW Tel: 01789 491860

Fax: 01789 778683 www.spearheadmachinery.com enquiries@spearheadmachinery.com