

Spearhead

MULTICUT 460



1 1th Edition - October 2013
Part No. 8999007

HANDBOOK

Spearhead Multicut 460 Handbook

1st Edition – October 2013

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.)

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.

Spearhead Machinery
Green View
Salford Priors
Evesham
Worcestershire
WR11 8SW
Tel: 01789 491860
Fax: 01789 778683
www.spearheadmachinery.com
enquiries@spearheadmachinery.com

© Spearhead Machinery Limited 2004

Spearhead Multicut 460

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

We, Spearhead Machinery Ltd, Green View, Salford Priors,
Evesham, Worcestershire, WR11 8SW hereby declare that:

Product

Product Code.....

Serial No.....

Type.....

Manufactured by: Alamo Manufacturing Services (UK) Limited, Station
Road, Salford Priors, Evesham, Worcestershire, WR11 8SW

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 14121-1 (2007) Safety of Machinery – Risk Assessment,
Part 1: Principles Part 2: Practical Guide and Examples of Methods.
- BS EN ISO 12100-1 (2010) Safety of Machinery – Part 1: Basic
Terminology and Methodology Part 2: Technical Principles.
- BS EN 349 (1993) + A1 (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) + A1 (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

.....

Spearhead Multicut 460

Contents

Content	4
Safety	5
Recommendations	6
Introduction	8
Tractor Requirements	8
Attaching To The Tractor	8
Setting Up Your Machine	10
Operation	12
Transportation	13
Machine Protection	14

Servicing & Maintenance

Safety First	15
Daily	16
Every 8 Hours	17
Torque Settings	17
Regularly	18
Blades	18
Slip Clutch Maintenance and Settings	19
Skids	21
Wheels	21
Storage	22
Trouble Shooting Guide	23
Warranty	24

Spearhead Multicut 460

Safety



Warning

Avoid fluid escaping under pressure. Consult technical manual for services procedures.



Warning

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



Warning

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



Warning

Stay clear of swinging area of implements.



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.

Spearhead Multicut 460

Recommendations

Beware of the following Potential Dangers associated with the use of this machine:

- Becoming trapped when hitching or unhitching
- Machine overbalancing when wing is raised.
- Getting caught on rotating power take off (PTO)
- Being hit or caught by any moving part, e.g. Blades, drive shaft and wings.
- Being hit by flying debris or machine parts due to machine damage
- Machine overbalancing when not in use
- Injection of high pressure oil from damaged couplings or hydraulic hoses
- Accidents due to collision with other machines, or debris left on road
- Beware of free-swinging blades over centering and falling when wings are folding.

ALWAYS:

- Ensure the operator has read this handbook and has been trained to use the machine.
- Ensure all safety guards are in place and all tractor windows closed.
- Impact resistant shielding to the tractor is recommended
- Before leaving the tractor cab always ensure that the wings are firmly on the ground, no weight is on the machine's hydraulics and the rotor has stopped spinning.
- Check that all guards are properly fitted and there are no damaged or loose parts. Particular attention should be given to the blades to ensure they are not damaged, cracked or missing
- Inspect work area for wire, steel posts, large stones and other dangerous materials and remove before starting work.
- Ensure that all warning labels are always visible and that they are not damaged, defaced or missing.
- Fit locking pins to height and to wings before transport and before unhitching when applicable.
- Wear ear defenders if operating without a quiet cab or with the cab windows open
- Ensure tractor guards are fitted correctly and are undamaged
- Work at a safe speed, taking into account terrain, passing vehicles and obstacles
- Ensure that the tractor meets the minimum weight recommendations of the machine manufacturer and that ballast is used if necessary
- Check that machine fittings and couplings are in good condition
- Follow the manufacturer's instructions for attachment and removal of machine from the tractor
- Ensure blades are of the type recommended by the manufacturer, are securely fitted and are undamaged
- Ensure hydraulic pipes are correctly routed to avoid damage from chafing, stretching, pinching or kinking.
- Check condition of tyres and tightness of wheel nuts.
- Ensure all blades have stopped spinning before folding wings into transport position.

Spearhead Multicut 460

Recommendations

- Disengage the machine, stop the engine and remove the key before leaving the tractor cab for any reason
- Clean up any debris left at the work site.
- Ensure that when you remove the machine from the tractor it is secured in a safe position using the stands provided.

NEVER:

- Never operate the machine with other people present, as it is possible for debris, including stones, to be discharged from the front and rear.
- Never operate the machine until you have read and understood this Handbook and are familiar with the controls.
- Never use a machine that is poorly maintained or has guards that are damaged or missing
- Never allow an inexperienced person to operate the machine without supervision.
- Never use or fit a machine onto a tractor if it doesn't meet the manufacturer's specification.
- Never use a machine if the hydraulic system shows signs of damage.
- Never attempt to detect a hydraulic leak with your hand, use a piece of card.
- Never allow children to play on or around the machine at any time.
- Never attempt any maintenance or adjustment without first disengaging the PTO, lowering the wings to the ground, stopping the tractor engine and applying the tractor parking brake.
- Never leave the cab without removing the ignition key.
- Never operate the tractor or any controls from any position other than from the driving seat.
- Never stop the engine with the PTO engaged.
- Never operate with blades missing.
- Never operate PTO above recommended speed, 1000 r.p.m.
- Never operate with wire around the rotor. Stop immediately.
- Never use the wing raised which may throw debris towards the cab.
- Never attempt to use the machine for any purpose other than that it was designed for.
- Never transport with the PTO engaged.
- Never enter the working area of the machine (risk of injury!).
- Never engage the P.T.O with wings folded.

Spearhead Multicut 460

Introduction

The Spearhead 460 is a heavy-duty rotary mower for a set-aside, stubble and pasture topping. By carefully following the instructions in this handbook, the 460 will give many years of trouble free operation.

Safety First

Never start using the machine until the handbook has been read and understood. The 460 rotary mower is a potentially lethal machine if used incorrectly and it is essential that the operator fully understand the working before starting up.

Tractor Requirements

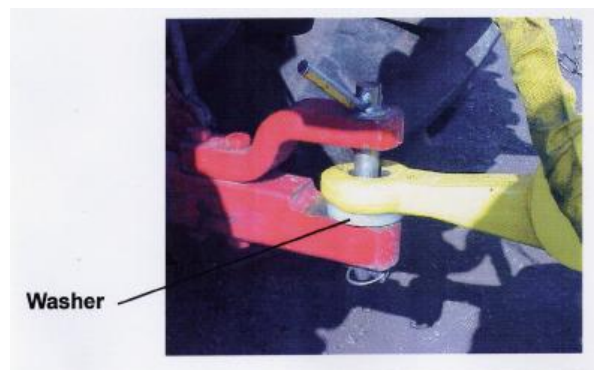
- Spearhead recommend tractors of between 85 and 150hp.
- A clevis drawbar must be used,
- minimum weight of 3000 kg.
- 1,000rpm P.T.O.
- Two external hydraulic services are required, single acting for height control and single acting for wings with float facility.

Attaching To The Tractor

It is essential to ensure that the tractor lift arms cannot foul the P.T.O. shaft, even when the tractor is on full lock. It is advisable to remove them altogether if there is any doubt.

The tractor drawbar should be extended to its maximum not less then 400mm from the P.T.O. This will enable turning in work without damaging the drive shaft. Never attach the mower using the pick-up hitch as this will cause damage to the drive shaft.

Fit the nylon washer between the mower drawbar and the tractor clevis, as shown, to reduce wear between the two parts. The nylon washer is a replaceable wearing part.

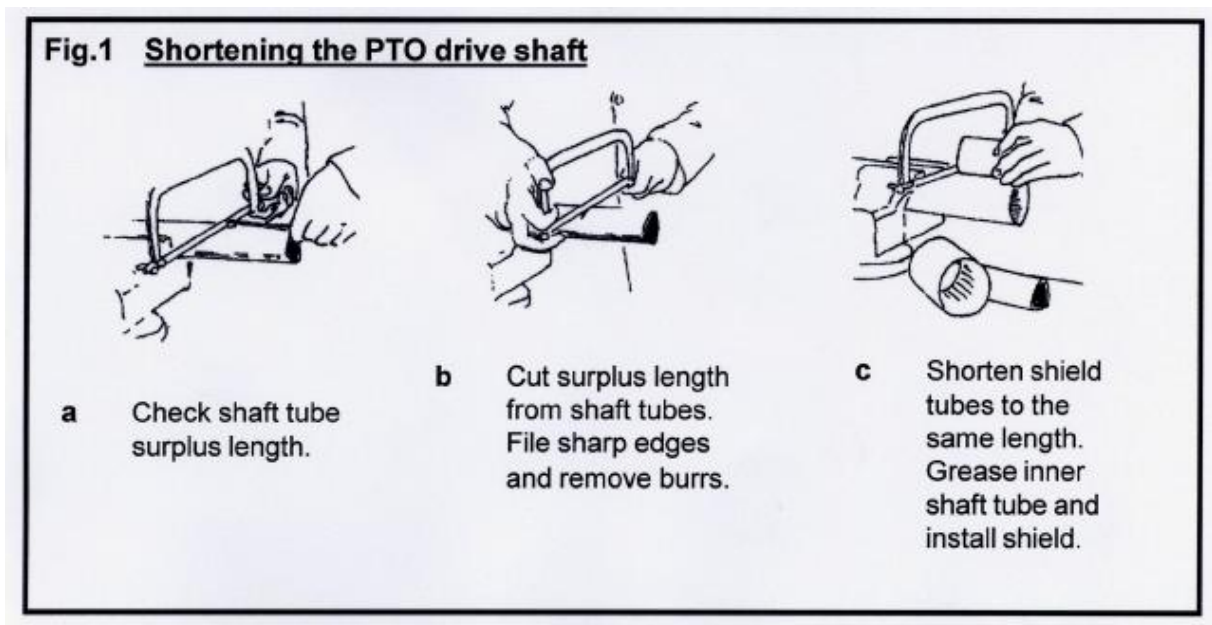


Warning

Do not attach machine to pick up hook. This will damage the P.T.O. shaft

Spearhead Multicut 460

Attaching To The Tractor



Before fitting the PTO 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 PTO shaft apart and connect to the tractor PTO 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.

To fit the PTO, first clean and grease. Press pins on the yoke and simultaneously push the PTO drive shaft onto PTO shaft of the tractor until pins engage.

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.

Connect the two hydraulic hoses, one to each separate single acting service, with a dump facility. This is particularly important for the spool valve that operates the wings as, when in work the wings must be able to follow the ground contours.

Spearhead Multicut 460

Setting Up Your Machine

Levelling – Front to Rear

Once coupled to the tractor, check the mower is cutting level from the front to the rear of the machine. This is important to ensure each rotor will cut at the same height (Fig. 3). The machine has adjustable tie bars that can be lengthened to lower the front or shortened to raise the front of the machine by turning barrel nut (Fig. 2). Once satisfied the mower is cutting level, tighten locking nuts.

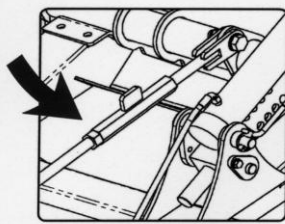


Fig.2 Levelling Adjuster

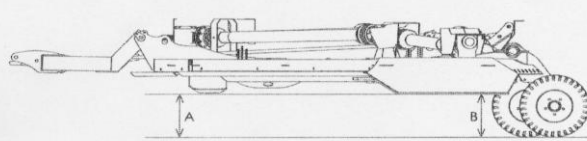


Fig.3 Height adjustments
The height at A should be 1" 25mm higher than at B.

Levelling – Wings LH & RH

With the machine in the working position and the wings folded down it may be necessary to alter the height of the wing to ensure each rotor is cutting level. There are several ways of adjusting the wing height on a Spearhead 460 mower. These adjustments are necessary to compensate for wear and also variation of tolerances. We recommend the wings are set 12 – 25mm ($\frac{1}{2}$ " – 1") higher than the centre chassis, to maintain a level cut.



1. Fine adjustment is made using the tumbuckle located between the axles, lengthen to lower the wing, shorten to raise the wing.

(Note do not expose more than 25mm of thread as the ball ends will foul in the clevis when fully lowered)

2. Coarse adjustment is made via the serrated disc located on each wing axle, move ball end rearwards to raise wing. Ensure the teeth fully engage. We recommend lock-tight on the Allen bolt and torque of 500Nm.

Warning

The machine is set at the factory with the centre deck 1" (25mm) higher at the front and the wings $\frac{1}{2}$ " (12mm) higher to the centre section, when mounted on the tractor drawbar at 16" (400mm).

When operating over uneven ground it is recommended to raise the front of the machine by adjusting the tie bars to prevent scalping or damage to the blades.



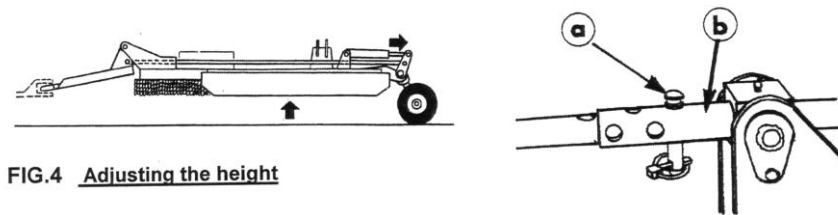
Spearhead Multicut 460

Setting Up Your Machine

Height

To alter the minimum height of cut; fully raise the machine, remove pin **a** (Fig. 4) slide sleeve **b** forward or backwards to raise and lower cutting height respectively, replace pin **a** through sleeve **b** and gently lower the machine. The sleeve **b** only controls the minimum cutting height, however the operator may raise and lower the machine by the hydraulic ram when the machine is in operation.

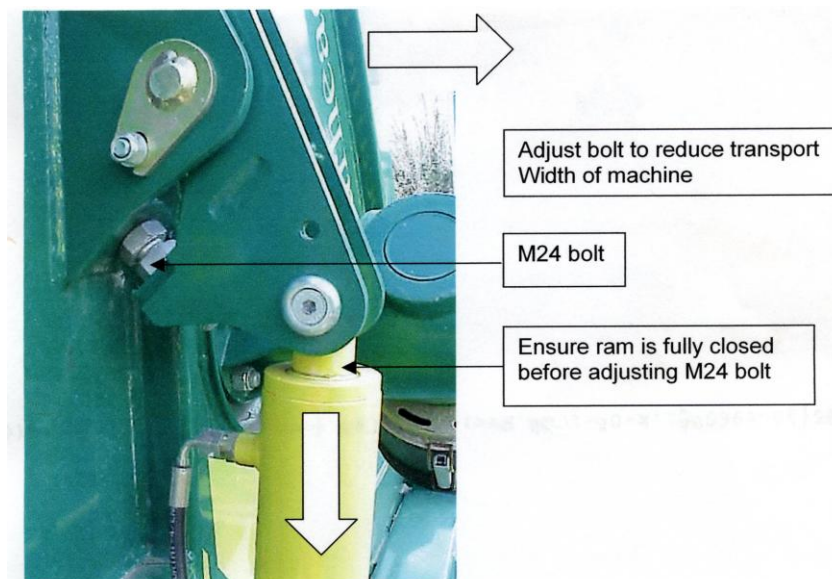
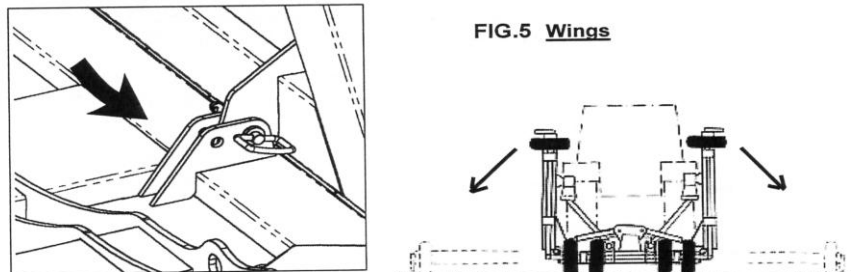
Use the height gauge as a guide when setting height of cut



Wings

Unfolding the wings if the machine is in the transport position, first pressurise hydraulic rams before releasing locking pins, lower both wings by releasing hydraulic pressure, leaving tractor spool in float position (Fig. 5).

The screw adjustment on the wing ram mounting point enables the transport width to be minimised when the wings are raised. Ensure wing rams are fully closed before lengthening adjusting bolt to reduce transport width.



Spearhead Multicut 460

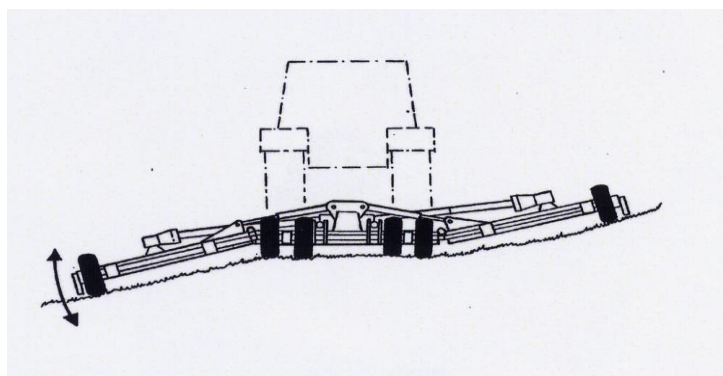
Operation

Once ready for work, raise the mower cutting height and slowly engage the PTO with the tractor engine at low revs to prevent shock damage to the drive line. Slowly increase the engine revs to achieve the recommended PTO speed of 540/1000r.p.m. As indicated by the decal on top of the centre guard and not the number of splines on the P.T.O shaft. If at any time serious vibration occurs, **stop the engine immediately and check the blades, following all safety precautions.** Select a sensible forward speed bearing in mind the density of growth, the terrain, and the available horsepower.

The quality of finish is determined by the forward speed, i.e. a slow speed will produce a high quality of cut, where as faster forward speeds are used when high output is first priority.

When in work, always ensure the hydraulic spool valve that operates the folding of the wings is in float position to enable the wings to freely follow all contours of ground (Fig. 6).

Fig. 6 contours of the ground



Whilst operating it is possible to continue working when turning as the 460 Rotary Cutter is fitted with a wide angle joint on PTO shaft. However take care not to run the rear tractor wheel against the mower draw bar as this will result in serious damage to the tractor, mower and in particular, the PTO shaft.

The wide angle joint on the input PTO shaft, allows the PTO to be left in gear whilst turning out of work, e.g. on the headlands. **It is important not to turn sharply when the machine is in work as this will over-strain and shorten the life of the drive shaft.**

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

Always exercise particular care when operating over uneven ground surfaces. Do not allow the blades and blade holder to frequently hit the ground.

Do not allow debris to build upon the cutting decks in dry conditions, as this can be a fire hazard, in wet conditions it will place unnecessary strain on the machine and may foul the drive shaft causing damage.

Spearhead Multicut 460



Warning

Do not run the machine with the wings raised, this is very dangerous. The risk of debris and machine parts being ejected is greater as the chain skirting is ineffective in this position.

Options

- An extra two wing wheels are available to improve contour following on uneven ground and when cutting very low.
- Where tractors do not have 1,000rpm PTO drive systems, a 540rpm drive can be specified.
- A swivel drawbar hitch is available if the machine is to be used in a very uneven condition.
- Walking centre axle c/w hydra cushion suspension, recommend for reducing shock loading and stress both in work and transport.
- Star-cut, extra blades to improve mulching. Recommend for straw.

Transportation

First disengage the PTO drive and $\frac{3}{4}$ raise the machine, fold the wings fully upright and secure with locking pin (Fig. 7). **Never** transport along public highways with the wings only supported by the hydraulics.

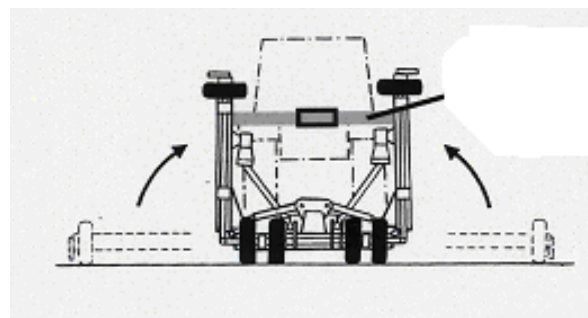
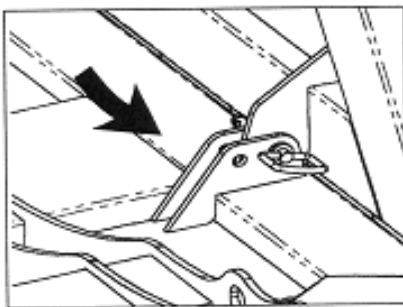
Please observe Public Highway Regulations, concerning the towing of implements, and securely attach a registration and lighting board.



Warning

Avoid transporting machine at high speed over rough ground
Maximum speed on highway – 20mph (30kph).

Fig. 7 Transportation position



Spearhead Multicut 460

Machine Protection

When the machine is delivered new, the slip clutch tensioning bolts will be purposely left loose after initial PDI at Spearhead. This is to force the clutches to be slipped and reset before the customer uses their machine for the first time. Refer to clutch settings on page 19/20.

To prevent gearbox damage all rotors are protected by slip clutches fitted to each of the five drive shafts. When cutting in extreme conditions where stumps, rocks and other such 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, fit stump jumper plates to lower blade carriers, and proceed with caution.

The clutch settings should not be altered without reference to Service and Maintenance. Never over-tighten the pressure springs on the slip clutches (Fig. 8) as this could result in severe damage to the gearbox and drive lines, as well as invalidating the warranty.

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 driveline and gearboxes against shock loading. To free the clutch plates first slacken all pressure spring bolts 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. Alternatively refer to page 19/20.

If in any doubt, consult Spearhead's Service Department or your local Spearhead Dealer for further advice.

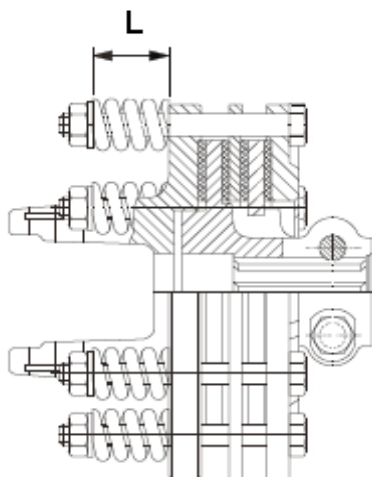


Fig. 8 Slip Clutch (WALTERSCHEID)

ACHTUNG!
WARNING!
ADVARSEL!



Wichtiger Wartungshinweis!
Vor Ersteinsatz und Einsatz nach längeren Stillstandszeiten (länger 4 Wochen) müssen alle Kupplungen gelüftet werden.

Anleitung:
a) Maß „L“ der Druckfeder messen
b) Muttern lösen, wodurch Reibscheiben entlastet werden.
c) Maschine mit entlasteten Kupplungen laufen lassen, ca. 30 Sekunden.
d) Muttern bis Maß „L“ anziehen. Kupplung ist wieder einsatzbereit.

Falls dieses nicht gemacht wird, können Schäden an Gelenkwelle und Getriebe auftreten! Weitere Informationen finden Sie in der Bedienungsanleitung des Gerätes oder der Gelenkwelle.

Important Maintenance-Instructions
Before first use of the machine, and after long periods of storage/inactivity (4 weeks plus), all clutches must be ventilated.



Instruction:
a) Check/Measure - L.
b) Loosen all nuts so that plates are loose.
c) Run the machine with loose Clutches approx. 30 Seconds.
d) Tighten the nuts again to Measure - L (value of L in operators manual).

If this is not carried out, there is a risk of damaging PTO shafts, clutches and gear boxes. Further information is in the Operators Manual.

Viktig vedligeholdels instruktion
Førud for første gangs brugtagning af maskinen, samt efter længere tids stilland (4 uger eller mere) skal alle glidekoblinger ventileres

Instruktion:
a) Check mål L.
b) Løsn alle koblingens møtrikker så glidepladerne er løse
c) Lad maskinen køre med løse belægnings ca. 30 sek.
d) Spænd igen møtrikkerne til mål L.

Udføres dette arbejde ikke, risikeres skader på PTO aksler og gearkasser. Yderligere information i instruktionsbogen.

8770430

Spearhead Multicut 460

Service & Maintenance

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 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 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.**

These checks are:

1. Wheel nuts and tyre pressure (40psi).
2. Gearbox bolts, including the splitter box.
3. Retaining bolts on the drive shafts.
4. Grease all points including drive shaft tubes.
5. **After the first 50 hours drain and replace the gearbox oil.**
Replace with EP90 gear oil.
6. All other nuts and bolts



Warning

Never carry out any servicing or maintenance work without first disengaging the PTO and then stopping the tractor engine before leaving the seat.

On delivery of your machine check that the dealer has completed the P.D.I form, ensure the warranty registration form is completed and returned.

Spearhead Multicut 460

Servicing & Maintenance

Daily

- Grease all points, including rear axle pivot points (Fig. 9a), axle hinge (Fig. 9c), wheel arms (Fig. 9b), and front draw bar pivot (Fig. 9f)
- Check bolts are tight on all gearboxes.
- Check condition of blades and blade bushes; ensure all retaining bolts are fully tight.
- Check wheel nuts are tight.
- Check tyre pressures – 40 P.S.I.
- Check gearbox oil, replenish with EP90 gear oil as necessary to the correct level line on the dipsticks, provided with each gearbox.

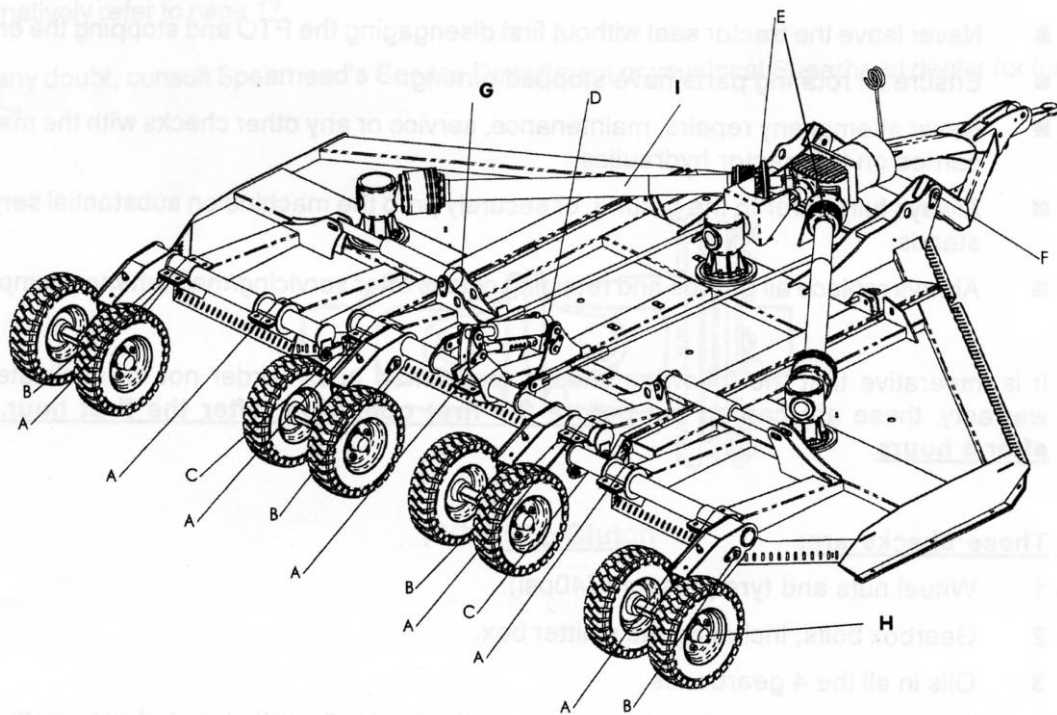
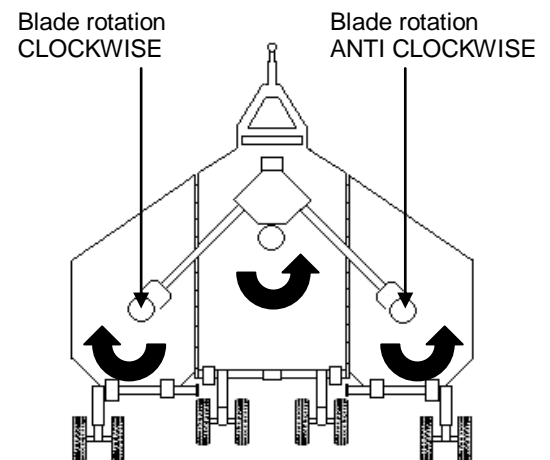


Fig. 9 Greasing points

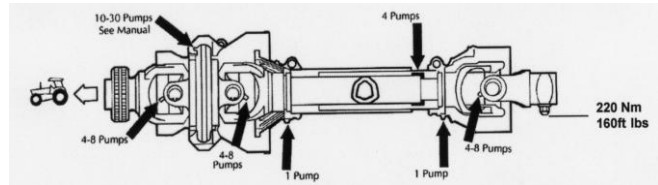
A	Rear axle pivot points; grease points	7 off
B	Wheel arm grease points	4 off
C	Rear axle hinge joint grease points	2 off
D	Height adjustment grease points	1 off
E	Drive shafts c/w slip clutch	2 off
F	Front drawbar grease points	2 off
G	Wing rams	2 off
H	Wheel bearings	8 off
I	Telescopic shafts	2 off



Spearhead Multicut 460

Service & Maintenance – Every 8 hours

Fig. 10
Primary input shaft.



- For maximum life and performance, the CV body must be greased regularly. Lubricate with the driveline in a straight position - up to 30 pumps of grease may be required.
- The metal drive tubes must be greased to operate properly.
- Shielding is subject to damage from abuse and weathering. Replace all damaged components and all shielding removed during maintenance.
- Do not use PTO adapters with CV drivelines. Replace special taper pin bolts only with genuine OEM parts, periodically check tightness of nuts.

- Dismantle and clean the main input P.T.O shafts sliding surfaces and regrease; failure to do this will result in serious damage to the splitter gearbox.
- Grease all universal joints, (Fig. 10) paying particular attention to the constant velocity joint. If under-greased this constant velocity joint will soon fail.
- Grease the wing drive shaft tubes, (note the hole in the plastic tubing for access).
- Lubricate the retaining collar on all the drive shaft guards (Fig. 10).
- Grease PTO inner tube and push pins (Fig. 10).
- Check all bolts are tightened to the correct Torque (Fig.11).

Torque Settings

The Torque figures given below are recommended maximum settings only.

Size:	Tensile strength:	Description:	Torque setting: Nm.
M16	8.8	Gearbox bolts	280
M16	8.8	Axle clamps	280
M24	8.8	Blade bolts	540-800
M24	12.9	Axle bolts	1500
		Wheel nuts	270

Spearhead Multicut 460

Servicing & Maintenance

Regularly

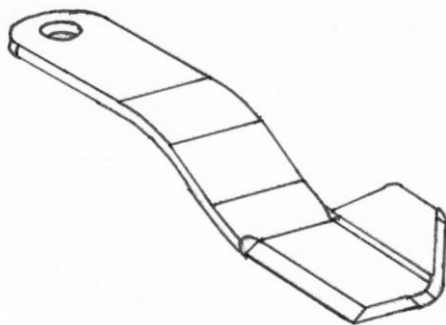
- Check there is no wrapping of string, plastic, grass or other debris between rotor boss and gearbox oil seal.
- Inspect gearbox seals for leaks.
- Clear grass and other debris from the deck.
- Regularly check the rotor boss retaining castle nut for tightness. First remove the split pin, select the 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. 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 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.**

Blades

Caution! When carrying out maintenance work on or near the blades be careful of free-swinging blades over-centering and falling. It is recommended that protective clothing including hardhat 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 overheat 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 replaceable. 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, as this will make them very brittle thus extremely dangerous. Do not take risks with the cutting blades - if in doubt, replace.



LH Blade (25")
Part No. 7770701
Cutting Rotation
Clockwise

Spearhead Multicut 460

460 Slip Clutch Maintenance & Settings

BONDIOLI Manufacture (Belleville Spring)

Check the condition of the friction discs before use and following periods of storage. Release the tension from the spring, turn the clutch while holding the P.T.O stationary. Adjust the spring compression to the original setting.

Following seasonal use, unload 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 worn to 2.5mm. Clean up all contact surfaces and replace any damaged components before assembly.



Warning

The slip clutch is there to protect the gearbox. If the blades strike a large obstacle they may get damaged or break - avoid these conditions.

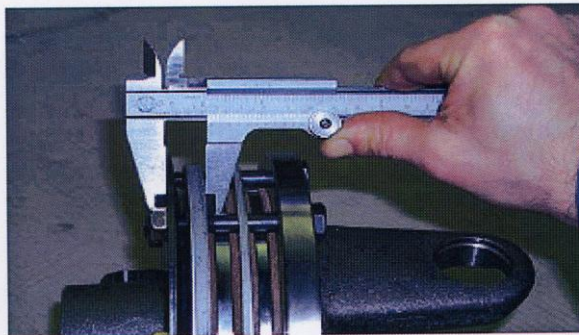


Fig 1

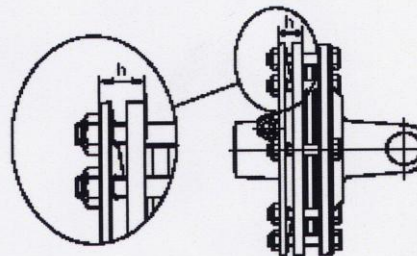


Fig 2

Fig. No.	Position	Part No.	Setting	Machine
2 (h)	Centre	5770223	18.9 mm	460 (1000rpm)
2 (h)	Wing	5770224	18.5 mm	460 (1000rpm)
2 (h)	Centre	5770030A	18 mm	460 (540rpm)
2 (h)	Wing	5770039A	18.5 mm	460 (540rpm)

Spearhead Multicut 460

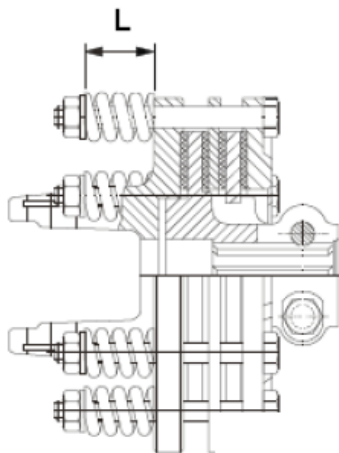
Clutch Maintenance & Settings

WALTERSCHEID Manufacture (Coil Spring)

Check the condition of the friction discs before use and following periods of storage.
Release the tension from the spring, turn the clutch while holding the P.T.O to ensure hub is not seized to linings.

Measure spring length before slackening nuts to vent, reset at same length.
Clutch settings listed for reference as clutch torque not spring length pre-set at factory.

Note: All spring lengths based on standard spring with a free length of 41.0mm.
Alternative spring 47.0mm long not covered by this chart.

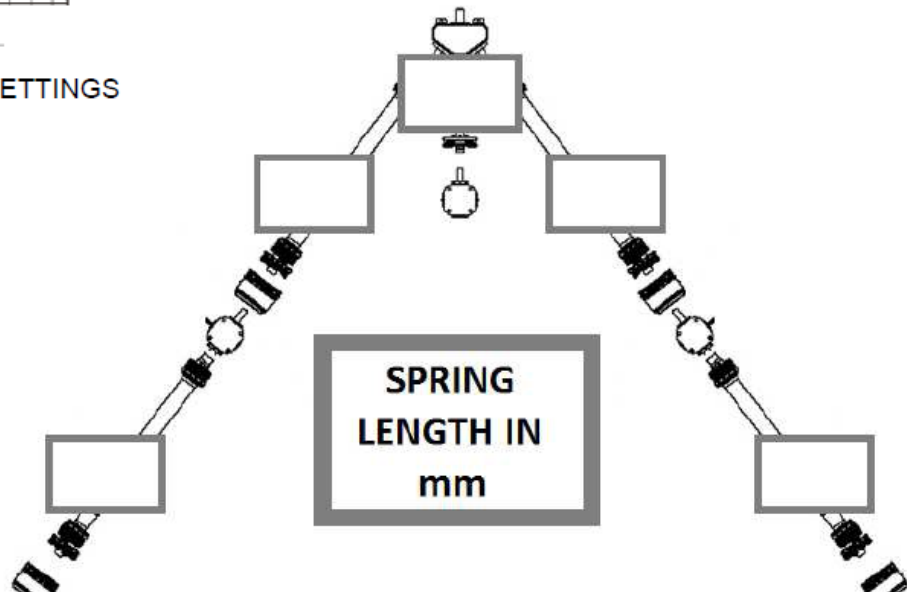


◀ Fig.13
4 Plate Clutch illustrated



WARNING! Slip clutches are fitted in order to protect the gearboxes. If the blades strike a large obstacle they can suffer damage or break – avoid these conditions wherever possible.

YOUR MACHINE SETTINGS



Clutch settings below are for reference only. Measured spring lengths should be used first.

Position	Part No.	Setting (L)	Machine
Centre	5770416	36.0 mm	460 (1000rpm)
Wing (2 plate)	5770417	35.0 mm	460 (1000rpm)
Wing (4 plate)	5770488	38.1mm	460 (1000rpm)
Centre (4 plate)	5770445	37.5 mm	460 (540rpm)
Wing	5770446	35.0mm	460 (540rpm)

Servicing & Maintenance

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.

Wheels



Warning

Heavy duty industrial tyres have been fitted to *460 Rotary Cutter* for convenience of tyre removal, the wheel rims are of the split rim type.

When removing the wheels only remove the five larger hub nuts.

Never undo the smaller outer nuts (which are painted red for danger) when removing the wheel.

The outer nuts must not be loosened until the valve has been removed and the inner tube is entirely deflated. **Then, and only then may the outer bolts can be loosened. Failure to observe these precautions could seriously injure and could even result in loss of life.**

If in any doubt consult a tyre repair specialist or Spearhead's Service Department.

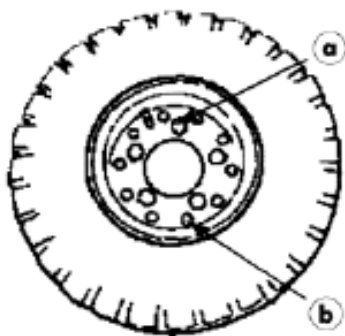


Fig. 15 Wheel

- A Hub nuts
- B Outer nuts (painted red)

Spearhead Multicut 460

Storage

Before storing away, thoroughly wash the machine 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 paint work. Use steam cleaners with caution and be sure to remove all detergents to avoid any discoloration or damage to the paintwork.

Grease all grease points until fresh grease shows. Liberally apply used engine oil along the whole length of the hinges of each wing section. The centre clutch coupling and wing shafts must be removed and stored under cover. Smear grease on the chrome ramrods for protection

After Storage

Disassemble clutches and with an emery cloth remove all traces of rust on the metal clutch plates. Check condition of the friction plates, if there is any sign of over heating, wear or cracking, replace with new. Do not attempt to use the machine with damaged slip clutch plates.

Reassemble the clutch units and tighten the bolts to achieve the correct spring length. Do not over tighten or the clutches will not work.

Check condition of tyres and pressure then follow the maintenance procedure covered in the servicing part of this manual. Pay particular attention to the condition of guards and blades.

Remember the *460 Rotary Cutter* is designed to withstand the most rigorous conditions and, with a little care and attention, will give many years of trouble free service. So as 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 540/1000r.p.m. on the PTO.

Spearhead Multicut 460

Trouble Shooting Guide

Broken or damaged blades

1. Raise cutting height to avoid striking the ground
2. Remove or avoid obstacles such as rocks
3. Check rotor speed
4. Ensure a steady feed into drive (Do not snatch the PTO)
5. Fit optional stump jumpers

Damaged blade holder

1. As above
2. Failure to keep tight centre retaining nut

Damage gearboxes

1. Seized slip clutch.
2. Telescopic shafts bottoming out
3. Engaging drive with too much power / revs
4. Lack of grease on sliding tubes of drive shaft

Damage to PTO shaft

1. Seized slip clutch
2. Telescopic tube bottoming out
3. Engaging drive with too much power / revs
4. Turning too sharp
5. Not enough overlap
6. Lack of grease
7. Build up of Debris under drive shaft

Gearbox overheating

1. Incorrect oil level
2. Incorrect grade of oil
3. Incorrect operating speed
4. Machine overloaded
5. Rubbish around the gearbox reducing air circulation

Slip clutches overheating

1. Machine overloaded
2. Incorrect operating speed
3. Incorrect setting
4. Blades hitting the ground

Oil leak from gearbox

1. Damaged shaft seal check for foreign matter (wire-string)
2. Faulty breather
3. Damaged gasket
4. Incorrect oil level

Metal fatigue on frame

1. Too fast a traveling / operating speed for conditions
2. Wings not floating i.e. following the ground contours (check tractor spool)
3. Used in a manner or condition contra to its intended purpose

Excessive skid wear

1. Set skids above the ground

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 will 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
2. This warranty does not cover defects arising from fair wear and tear, wilful 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.
3. 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 authorised by Spearhead and dismantling of any components without authorisation 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.

Spearhead Multicut 460

Spearhead Warranty

Extended Warranty

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 hydraulic pumps, motors, valves and gearboxes only. It does not apply to other parts, to consumables such as lubricants, seals or filters 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.
3. 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.

