

# Operator's manual & parts lists

## AF-15 flail mower



Spearhead



# **AF-15 flail mower**

## **Operator's manual**

**Second edition**

**March 1999**

## Important

The purchaser should ensure that this manual is handed to the operator before using the machine for the first time and should be satisfied that the operator fully understands the contents of this manual before being allowed to proceed. If the machine is resold the Operators Manual must be given to the new owner.

Fill in the details below, you will find it useful to refer to when ordering spare parts.

Serial No.

Date of Delivery

Dealer's address

Telephone No.

**Spearhead Machinery Limited**  
Persnore Trading Estate,  
Persnore,  
Worcestershire WR10 2DD  
Tel: 01386 556748 Fax: 01386 561398

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## Safety

- 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 flail head.
- 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 allow children to play on or around the machine at any time.
- Never attempt any maintenance or adjustment without first disengaging the p.t.o., lowering the machine to the ground, stopping the tractor engine and applying the tractor parking brake.
- Before leaving the tractor cab always ensure that the flail head is firmly on the ground, no weight is on the machine's hydraulics and the rotor has stopped spinning.
- Never stop the engine with the p.t.o. engaged.
- Always check that all guards are properly fitted, check there are no damaged or loose parts. Particular attention should be given to the flails to ensure they are not damaged, cracked or missing.
- Never operate with flails missing.
- Always inspect work area for wire, steel posts, large stones and other dangerous materials and remove before starting work.
- 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.



## Introduction

The Spearhead AF15 flail mower is a robust high capacity flail mower that is easy to operate and maintain but to ensure trouble free operation this manual should be carefully studied.

## Safety First

Do not start the machine until you fully understand operation and safety precaution requirements.

## Attaching to the tractor



**WARNING - It is most important the operator fully understands the procedure for attaching/unattaching the mower to/from the tractor. The following text must be fully understood before attempting to attach the machine. If there is any doubt please contact your supplying dealer or Spearhead Service Department. Failure to follow the correct procedure to attach/unattach the machine could result in personal injury or machine damage. Any resulting damage to a machine is not covered by warranty.**



**WARNING - For every model of tractor a different type of lift arm is required.**

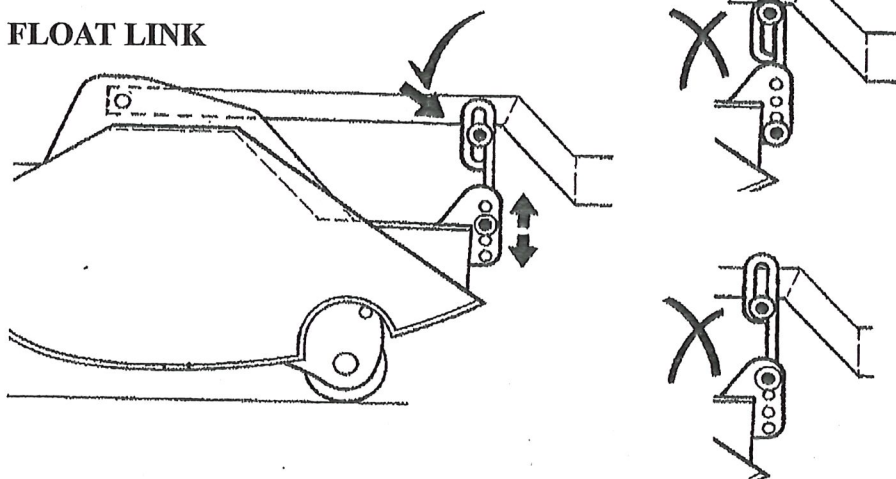
Always be sure to select a level firm surface, such as concrete before attaching to the tractor.

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

First fit the correct Spearhead linkage arms to the tractor, ensuring they are correct type for the tractor being used. It is highly recommended that the initial fitting is carried out by your Dealer.

Fully raise the link arms and slowly drive forward until the link arm ends are directly above the mounting pins on the mower body. Lower the arms to the correct height and fit pin through the link arm end.

### FLOAT LINK



Float link to be fitted in a position which allows equal movement up or down when the tractor and machine are on level ground. It's purpose to raise rear of the machine when mower is lifted, and to stop p.t.o. becoming disconnected.

## Attachine p.t.o. shaft

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 guard tube. Shorten the inner sliding profile by the same length as the guard tube (shorten male shaft only on splined type). File all sharp edges and remove burrs. Grease sliding profiles.

The fit the p.t.o., first clean and grease. Press pins on the yoke and simultaneously push the p.t.o. drive shaft on the p.t.o. shaft of the tractor until pins engage.

## Setting up and adjustment

### Height adjustment

The height of cut is controlled by a rear roller and front castoring wheels. The rear roller is repositioned by selecting a matching set of holes on the two side plates, attached to the rear roller (Fig. 2). The front castor wheels are repositioned by selecting spacers on the castor wheel stem (Fig. 1).

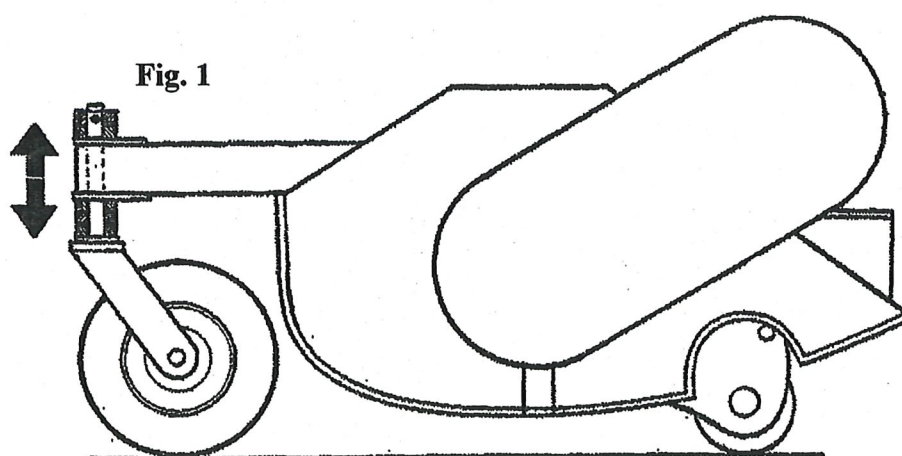
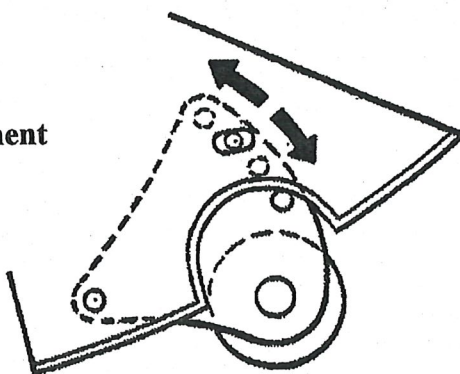


Fig. 2

Height adjustment  
for rear roller



It is most important that the equal spacers are selected on the left and right hand side to ensure that there is a uniform height of cut from left to right. It is advised that the machine's working position from front to rear is level or slightly higher at the front.

### **P.t.o. Speed**

The machines are supplied as standard as a direct 1:1 ratio to the rotor. It is important that the machine is operated at a p.t.o. speed of 2200 r.p.m. Before first use, please refer to your tractor manual and/or tractor Dealer to ensure your p.t.o. speed is 2200 r.p.m. when tractor engine is operated at a maximum speed.

### **Operation**

Before use please check all routine maintenance has been carried out. Engage the p.t.o. only when the tractor engine is at low revs to prevent shock damage to machine. Slowly increase the engine revs to maximum speed to achieve correct p.t.o. speed. If at any time serious vibration occurs, stop the engine immediately and check that no flails 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 the weight on the rear roller and front castoring wheels, allowing the machine to follow the contours of the ground. Select a sensible forward speed bearing in mind the density of growth, the terrain and the available horsepower, taking extra care when turning, particularly on slopes. When turning it is not necessary to lift the machine off the ground but instead allow sufficient room to turn in a large radius. The machine only needs to be raised when turning in a tight corner.

Quality of finish is determined by the forward speed i.e. a slow speed will produce a high quality of cut, whereas fast forward speeds are used when high output is first priority.

## Servicing and maintenance



**WARNING** - Never carry out any servicing or maintenance work without first disengaging the p.t.o. and stopping the tractor.

### Daily

1. Check the condition of the flails and ensure all retaining bolts are tight. When blades are replaced, care must be taken not to disturb the balance of the rotor shaft. Never operate with broken, bent or missing flails; this will cause immediate bearing failure and in the long term cause structural damage to the machine.
2. Check the condition of drive belts, ensuring they are aligned and properly tensioned to avoid any unnecessary belt wear (Fig. 3).

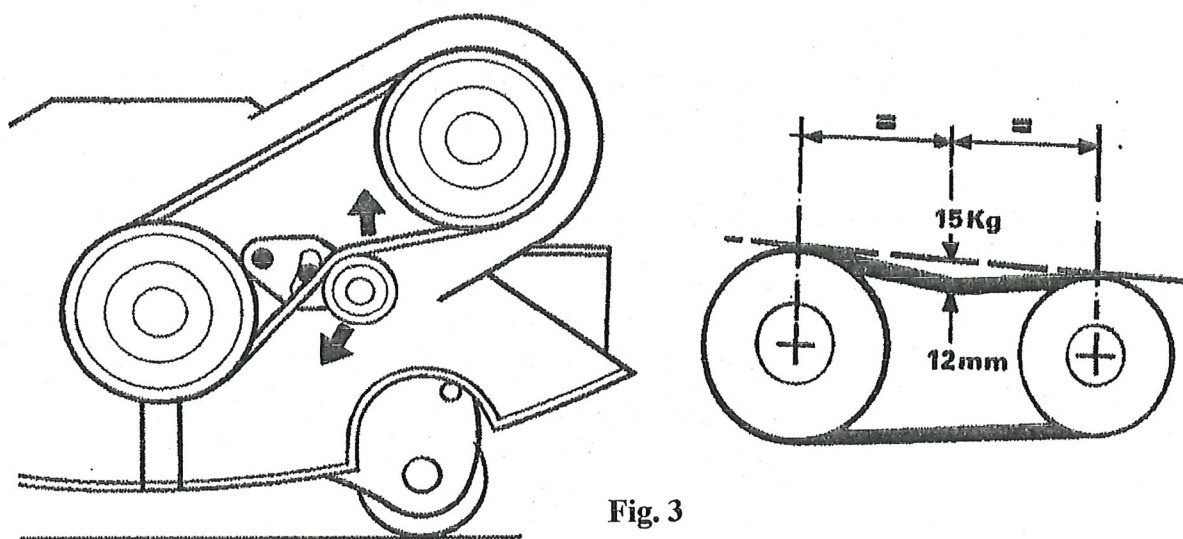


Fig. 3

3. It is imperative that the grub screws are checked on the pulleys and bearings, once bedded in Lactate glue may prove useful.
4. Check there is no wrapping of string, plastic, grass or other debris on rotor shaft and rear roller bearings.

5. Check the condition of flails and ensure all retaining bolts are tight. When flails are replaced care must be taken to maintain balance of rotor shaft.
6. Blunt flails leave an untidy finish and absorb excessive power, when re-sharpening always wear protective clothing and goggles.
7. When flails are showing severe wear, damage or cracking they must be replaced immediately. Never attempt to weld the flails this will make them very brittle and extremely dangerous. Do not take risks with the cutting flails, if in doubt replace.
8. When replacing flails always replace bolts, nuts, washers and bushes for new.
9. Check that all gearbox bolts are tight.
10. Grease rear roller bearings, rotor bearings, p.t.o. shaft, front castor wheels and front spindles.
11. Check tyre pressures.



**WARNING - When the machine is new there will be a 'bedding in' period when very frequent checking is important.**

### **Gearbox**

1. Before first use check gearbox oil level, thereafter check every 8 hours.
2. Regularly inspect gearbox oil seals.

## **Every 50 hours**

Closely inspect the condition of both rotor main bearings.

## **Every 200 hours**

Drain and replace gearbox with EP90 oil.

## **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 washers, and steam cleaners do not hold the water jet close to the paintwork, and be sure to remove all detergents to avoid any discolouring or damage to paint. Grease all grease points until fresh grease shows. Slacken rotor drive belts. It is important where possible to store undercover, to protect against rain and sunlight. Always ensure a firm level surface.

Remember the AF15 Flail Mower is a well engineered machine and with a little care and attention, will give many years 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 i excess of 2200 r.p.m. at the p.t.o.

**Servicing Log**

Date ..... Details .....  
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**Setting up and adjustment**

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**Servicing and maintenance**

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# Spearhead

## **EC declaration of conformity, conforming to EEC directive 89/392/EEC**

We, Spearhead Machinery Ltd, Pershore Trading Estate, Pershore,  
Worcestershire WR10 2DD declare under our sole responsibility that the

product .....  
product code .....  
serial no. & date .....  
type .....

Manufactured by the above company complies with the required  
provisions of the directive 89/392/EEC, and AMD 91/368/EEC, AMD 93/  
44/EEC, AMD 93/68/EEC and conforms with European norm. BSEN 292;  
Part 1: 1991 safety of machinery - Terminology, methodology; Part 2;  
1991 Safety of machinery - Technical specifications and other national  
standards associated with its design and constructions as listed in the  
Technical File.

Signed .....  
on behalf of Spearhead Machinery Ltd  
Status .....  
Date .....

## 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.

### **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 Authorised 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 travelling 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.**



# Front mounted flail mower



**The AF15 out front flail mower is designed specifically for certain forward control tractors. It has the advantage of cutting in all amenity grass conditions, leaving a clean striped finish.**

**Standard features include**

- High tensile dynamically balanced steel rotor
- Large self-aligning rotor bearings
- Scooped chisel type flails for a clean uniformed cut
- 45hp cast iron gearbox
- Doomed end rear roller c/w internal bearings
- Rear discharge
- Pair of front adjustable castoring wheels

**Standard AF15 flail mower, 1.4m cut  
including link arms & p.t.o. shaft . . . . . £3750.00**

Before ordering please contact Spearhead for more information on tractor compatibility