

SPEARHEAD

DESTROYER



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Part No. 8999012

HANDBOOK

IMPORTANT VERIFICATION OF WARRANTY REGISTRATION



DEALER WARRANTY INFORMATION & REGISTRATION VERIFICATION

It is imperative that the selling dealer registers this machine with Spearhead Machinery Limited before delivery to the end user – failure to do so may affect the validity of the machine warranty.

To register machines go to the Spearhead Machinery Limited web site at www.spearheadmachinery.com, log onto '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 Spearhead Service Department on 01789 491867.

Registration Verification

Dealer Name:
Dealer Address:
Customer Name:
Date of Warranty Registration:/...../..... Dealer Signature:

NOTE TO CUSTOMER / OWNER

Please ensure that the above section has been completed and signed by the selling dealer to verify that your machine has been registered with Spearhead Machinery Limited.

IMPORTANT: During the initial 'bedding in' period of a new machine it is the customer's responsibility to regularly inspect all nuts, bolts and hose connections for tightness and re-tighten if required. New hydraulic connections occasionally weep small amounts of oil as the seals and joints settle in – where this occurs it can be cured by re-tightening the connection – *refer to torque settings chart below*. The tasks stated above should be performed on an hourly basis during the first day of work and at least daily thereafter as part of the machines general maintenance procedure.

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Introduction

The Spearhead Destroyer 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 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.)

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Safety



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.

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Recommendations

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

- Becoming trapped when hitching or unhitching
- Getting caught on rotating power take off (PTO)
- Being hit or caught by any moving part, e.g. Blades and drive shaft.
- Being hit by flying debris or machine parts due to machine damage
- Accidents due to collision with other machines, or debris left on road

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 ensures that the machine is firmly on the ground, no weight is on the tractor'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..
- 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
- 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.

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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 allow children to play on or around the machine at any time.
- Never attempt any maintenance or adjustment without first disengaging the PTO, lowering 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 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!).



Important

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.



Safety first

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

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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 the 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 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.

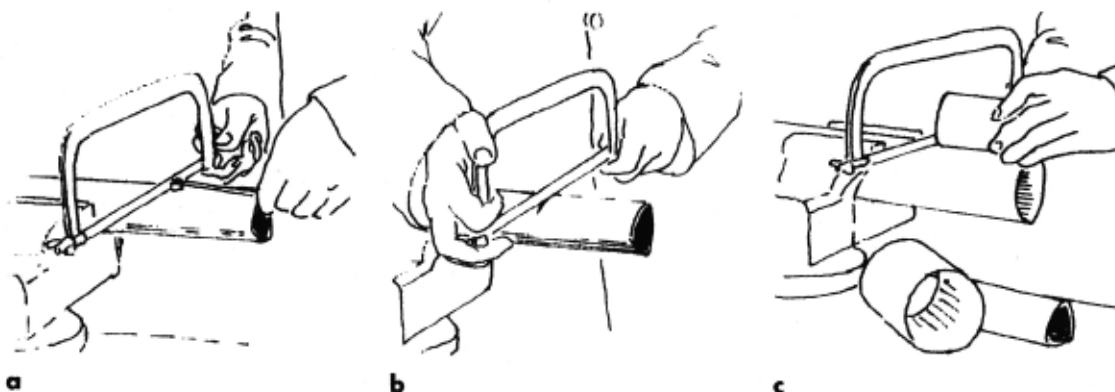


Fig 1 - Shortening the PTO drive shaft

- 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 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.

Setting Up & Adjustment

Height

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

Machine Protection

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

The clutch settings should not be altered without reference to the Spearhead Service Department. Never over-tighten the pressure springs on the slip clutches. This could result in severe damage to the gearbox and drive lines, as well as infringing on the warranty.

Important

If the machine has been laid up for any length of time, there is a risk of the clutch plates rusting and seizing together. Never operate the machine in this condition, as there will be no protection to the 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.

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

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Operation

Engage the PTO only when the tractor engine is at low revs to prevent shock damage to the machine. Slowly increase the engine revs to achieve the standard 1000rpm PTO speed.

If at any time serious vibration occurs, stop the engine immediately and check that no blades are missing - following all safety precautions. The cause must be found and rectified immediately or other components may be affected.

When in work, lower the machine to the ground carrying its weight on the skids, allowing the machine to follow the contours of the ground and ensuring there is sufficient slack in the wire 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 in a tight corner or reversing over dense undergrowth, or when operating on the front linkage.

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

When operating in dense growth, particularly if cutting material more than 3" (75mm) thick, it is possible to cut going backwards. To reverse over scrub use nudge bar to push down material into the path of the blades. Proceed with caution where there is a risk of hitting solid obstacles. In very heavy conditions under load it is better to take a little at a time to prevent overloading the gearbox slip clutch.

Transportation

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

Take care to slow when travelling over rough ground and avoid bouncing the machine on linkage, causing unnecessary strain.

Service & Maintenance

Safety First



Warning

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

- 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 is completed.

Important

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

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:

- Gearbox bolts.
- Oil is in the gearbox at the correct level.
- Blade bolts are fully tightened, in particular the castle headed nut on the blade rotor.
- Retaining bolts on the drive shaft.
- Grease all points.
- After the first 50 hours drain and replace the gearbox oil. Replace with EP90 gear oil.

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

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Service & Maintenance

Torque Settings

The Torque figures given below are recommended maximum settings only.

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

Daily / Every 8 hours

- Grease all grease points, including PTO.
- Check condition of blades and blade bushes and ensure all retaining bolts are fully tight.
- Check gearbox oil, replenish with 'EP90' gear oil as necessary to the correct level line on the dipstick provided with each gearbox.
- Dismantle and clean PTO sliding surfaces and re-grease. Grease universal joints (Fig 2)

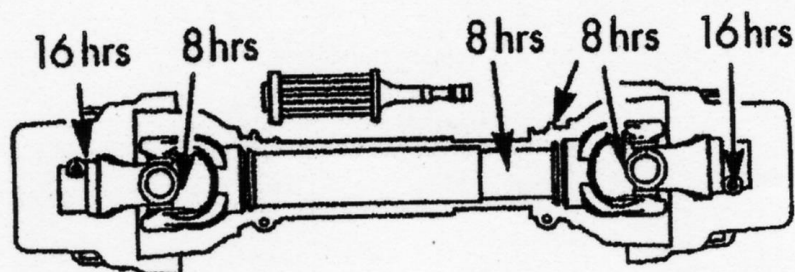


Fig. 2 - PTO drive and grease points

Every 16 hours

- Grease PTO inner tube and push pins (Fig 2)

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Service & Maintenance

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. 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 the hub, which is expensive to repair.

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

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.

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Service & Maintenance

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 paintwork.

Do not use steam cleaners and be sure to remove all detergents to avoid any discolouring or damage to paint. Grease all grease points until fresh grease shows. Store PTO shaft and drive belts in a dry place

Remember, the Spearhead Destroyer is designed to withstand the most rigorous conditions, 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 1000r.p.m. on the PTO.

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Slip Clutch Maintenance & Settings

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

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

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

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



Fig 1

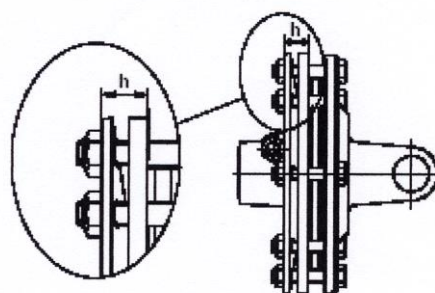


Fig 2

Fig No.	Position	Part No.	Setting	Machine
2 (h)	Centre	5770528	20.1mm	Destroyer (1000rpm)

Note

Friction clutches may become hot. **DO NOT TOUCH**

DESTROYER

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