

# Spearhead

## Trident HD



**Edition 1.1 - June 2016**

**Part No. 8999082**

# HANDBOOK

# Trident HD

## 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](http://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

|                                       |  |
|---------------------------------------|--|
| <b>Dealer Name:</b>                   | .....  |
| <b>Dealer Address:</b>                | .....  |
| <b>Customer Name:</b>                 | .....  |
| <b>Date of Warranty Registration:</b> | ...../...../..... <b>Dealer Signature:</b> ..... |

### 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.

### CAUTION: DO NOT OVER TORQUE HYDRAULIC FITTINGS AND HOSES

#### TORQUE SETTINGS FOR HYDRAULIC FITTINGS

| HYDRAULIC HOSE ENDS |         |        |
|---------------------|---------|--------|
| BSP                 | Setting | Metric |
| 1/4"                | 18 Nm   | 19 mm  |
| 3/8"                | 31 Nm   | 22 mm  |
| 1/2"                | 49 Nm   | 27 mm  |
| 5/8"                | 60 Nm   | 30 mm  |
| 3/4"                | 80 Nm   | 32 mm  |
| 1"                  | 125 Nm  | 41 mm  |
| 1.1/4"              | 190 Nm  | 50 mm  |
| 1.1/2"              | 250 Nm  | 55 mm  |
| 2"                  | 420 Nm  | 70 mm  |

| PORT ADAPTORS WITH BONDED SEALS |         |        |
|---------------------------------|---------|--------|
| BSP                             | Setting | Metric |
| 1/4"                            | 34 Nm   | 19 mm  |
| 3/8"                            | 47 Nm   | 22 mm  |
| 1/2"                            | 102 Nm  | 27 mm  |
| 5/8"                            | 122 Nm  | 30 mm  |
| 3/4"                            | 149 Nm  | 32 mm  |
| 1"                              | 203 Nm  | 41 mm  |
| 1.1/4"                          | 305 Nm  | 50 mm  |
| 1.1/2"                          | 305 Nm  | 55 mm  |
| 2"                              | 400 Nm  | 70 mm  |

# Trident HD

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## WARRANTY POLICY

### WARRANTY REGISTRATION

All machines must be registered, by the selling dealer with Spearhead Machinery Ltd, before delivery to the end user. On receipt of the goods it is the buyer's responsibility to check that the Verification of Warranty Registration in the Operator's Manual has been completed by the selling dealer.

#### 1. LIMITED WARRANTIES

- 1.01. All machines supplied by Spearhead Machinery Limited are warranted to be free from defects in material and workmanship from the date of sale to the original purchaser for a period of 12 months, unless a different period is specified.
- 1.02. All spare parts supplied by Spearhead Machinery Limited are warranted to be free from defects in material and workmanship from the date of sale to the original purchaser for a period of 6 months.
- 1.03. The manufacturer will replace or repair for the purchaser any part or parts found, upon examination at its factory, to be defective under normal use and service due to defects in material or workmanship. Returned parts must be complete and unexamined.
- 1.04. This warranty does not apply to any part of the goods, which has been subjected to improper or abnormal use, negligence, alteration, modification, fitment of non-genuine parts, accident damage, or damage resulting from contact with overhead power lines, damage caused by foreign objects (e.g. stones, iron, material other than vegetation), failure due to lack of maintenance, use of incorrect oil or lubricants, contamination of the oil, or which has served its normal life. This warranty does not apply to any expendable items such as blades, flails, bushes, belts, flap kits, skids, shields, guards, wear pads or pneumatic tyres.
- 1.05. Temporary repairs and consequential loss - i.e. oil, downtime and associated parts are specifically excluded from the warranty.
- 1.06. Warranty on hoses is limited to 12 months and does not include hoses which have suffered external damage. Only complete hoses may be returned under warranty, any which have been cut or repaired will be rejected.
- 1.07. Machines must be repaired immediately a problem arises. Continued use of the machine after a problem has occurred can result in further component failures, for which Spearhead Machinery Ltd cannot be held liable, and may have safety implications.
- 1.08. Except as provided herein, no employee, agent, dealer or other person is authorised to give any warranties of any nature on behalf of Spearhead Machinery Ltd.
- 1.09. For machine warranty periods in excess of 12 months the following additional exclusions shall apply:
  - 1.09.1. Hoses, external seals, exposed pipes and hydraulic tank breathers.
  - 1.09.2. Filters
  - 1.09.3. Rubber mountings
  - 1.09.4. External electric wiring.
  - 1.09.5. Labour and mileage costs.
- 1.10. All service work, particularly filter changes, must be carried out in accordance with the manufacturer's service schedule. Failure to comply will invalidate the warranty. In the event of a claim, proof of the service work being carried out may be required.

***NB Warranty cover will be invalid if any non-genuine parts have been fitted or used. Use of non-genuine parts may seriously affect the machine's performance and safety. Spearhead Machinery Ltd cannot be held responsible for any failures or safety implications that arise due to the use of non-genuine parts.***

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## 2. REMEDIES AND PROCEDURES

- 2.01. The warranty is not effective unless the Selling Dealer registers the machine, via the Spearhead Machinery web site and confirms the registration to the purchaser by completing the confirmation form in the operator's manual.
- 2.02. Any fault must be reported to an authorised Spearhead Machinery dealer as soon as it occurs. Continued use of a machine, after a fault has occurred, can result in further component failure for which Spearhead Machinery Ltd cannot be held liable.
- 2.03. Repairs should be undertaken within two days of the failure. Claims submitted for repairs undertaken more than 2 weeks after a failure has occurred, or 2 days after the parts were supplied will be rejected, unless the delay has been authorised by Spearhead Machinery Ltd.
- 2.04. All claims must be submitted, by an authorised Spearhead Machinery Service Dealer, within 30 days of the date of repair.
- 2.05. Following examination of the claim and parts the manufacturer will pay, at their discretion, for any valid claim the cost of any parts and an appropriate labour allowance if applicable.
- 2.06. The submission of a claim is not a guarantee of payment.
- 2.07. Any decision reached by Spearhead Machinery Ltd is final.

## 3. LIMITATION OF LIABILITY

- 3.01. The manufacturer disclaims any express (except as set forth herein) and implied warranties with respect to the goods including, but not limited to, merchantability and fitness for a particular purpose.
- 3.02. The manufacturer makes no warranty as to the design, capability, capacity or suitability for use of the goods.
- 3.03. Except as provided herein, the manufacturer shall have no liability or responsibility to the purchaser or any other person or entity with respect to any liability, loss, or damage caused or alleged to be caused directly or indirectly by the goods including, but not limited to, any indirect, special, consequential, or incidental damages resulting from the use or operation of the goods or any breach of this warranty. Notwithstanding the above limitations and warranties, the manufacturer's liability hereunder for damages incurred by the purchaser or others shall not exceed the price of the goods.
- 3.04. No action arising out of any claimed breach of this warranty or transactions under this warranty may be brought more than one (1) year after the cause of the action has occurred.

## 4. MISCELLANEOUS

- 4.01. The manufacturer may waive compliance with any of the terms of this limited warranty, but no waiver of any terms shall be deemed to be a waiver of any other term.
- 4.02. If any provision of this limited warranty shall violate any applicable law and is held to be unenforceable, then the invalidity of such provision shall not invalidate any other provisions herein.
- 4.03. Applicable law may provide rights and benefits to the purchaser in addition to those provided herein.

# Trident HD

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## 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**

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# Trident HD

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# Trident HD

## Safety



**Warning**  
Liquids under pressure!  
For Information see the  
technical manuals  
maintenance procedures.



**Warning**  
Before beginning any  
maintenance or repair  
work on the  
equipment, pull out  
the key.



**Warning**  
Ejected objects. Keep a  
safe distance from the  
unit.



**Warning**  
Every 8 hours, check  
the tightness of all  
nuts.



**Warning**  
Keep a safe distance  
away from the blade of  
the device.  
Never open the protective  
device (s) when machine  
is operating.  
Warning! Danger of being  
pulled into rotating parts.



**Warning**  
Read operators manual  
before operating this  
machine. Always read  
and follow all  
regulations and safety  
instructions when  
operating the device.



**Warning**  
Not enter the work area of  
the machine.

**Recommended P.T.O.  
speed 1000 r.p.m.**

**Warning**  
The recommended  
speed of the  
machine, for  
example. 540, 1000,  
or 2200 rpm (r / min).  
This should never be  
exceeded.

# Trident HD

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## Recommendations

### ***To note the following dangers of the product:***

- People can be jammed during installation and removal of the device.
- With raised side wings, the unit falls (*some machines*).
- People can be injured by the rotating drive shaft.
- People can be injured by moving parts, such as Blades, drive shafts and side wings.
- People can be struck by ejected objects or damage of equipment parts.
- The unit may tip over if it is not in operation (*some machines*).
- Under high pressure leaking oil from damaged fittings or hydraulic hoses can occur.
- When opening the wing, check that the blades will rotate freely (*some machines*)

### ***Always proceed as follows***

- The driver must have read these instructions and have been instructed in the use of the device.
- Make sure that all shields are installed correctly and that the window of the tractor are closed.
- Use best impact resistant shields on the tractor.
- Always Before leaving the tractor cab that the wings lean on the ground that the hydraulics of the device is not loaded with weight and that the rotor has come to a complete stop (*some machines*).
- Make sure that all shields are installed correctly and that there are no broken or loose parts. Especially note that no knife is missing or cracks or other damage.
- Keep work area clear and remove any ropes, poles, large stones and other dangerous objects before beginning the work.
- Make sure that all warning signs are always visible and that no missing, corrupt, or have become illegible.
- Use the built in ram lock for locking the device in height and, if possible, the side wings before transport (*some machines*).
- Use hearing protection if the device is operated by a non-soundproof cabin, or if the cabin windows are open.
- Ensure that all tractor screens are intact and correctly mounted.
- Drive with reasonable speed considering the terrain conditions and any other vehicles and obstacles.
- Ensure the tractor meets the recommendations of the equipment manufacturer in terms of minimum weight, if necessary, provide additional ballast.
- The state of the hardware, fittings and couplings Test the unit.
- Follow the manufacturer regarding installation and removal of the device on the tractor recommendations.
- Make sure that the blades conform to the type specified by the manufacturer and that they are reliably fixed and not defective.
- Ensure that all hydraulic pipes and hoses are correctly fitted so that abrasion, stretching or bending damage is avoided (*some machines*)
- The tyre condition and tightening all the lug nuts check (*some machines*).
- Check that all blades have stopped before the wings are folded in transport position (*some machines*).
- Turn off the machine, turn off the tractor engine and remove the key before leaving the cab of the tractor, irrespective of the cause.
- Remove Any material left behind residues and loose objects from the work area.
- The device support safe when it is not attached to the tractor (*some machines*).



# Trident HD

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## Always observe the following

- The Never operate when persons are near the device: There is a danger that grass cuttings and stones are thrown out at the front and rear unit.
- Never use the machine before you have read and understood these instructions and are familiar with the operating controls.
- Never use the machine if it is not properly maintained, or if shields are missing or damaged.
- Never allow a person who has no skills to operate the machine unattended.
- Never operate the equipment with a tractor that does not meet the manufacturer's specifications.
- Never use the machine with unsound hydraulics.
- Never try by hand to locate leaks in the hydraulic system, instead, use a piece of cardboard.
- Never let children play on the unit or near the device.
- Before maintenance or adjustment of any kind, proceed as follows: Turn off the PTO drive, lower the wing (some machines) to the ground, turn off the tractor engine and apply the parking brake of the tractor.
- Never leave the ignition key in the tractor when leaving the tractor cab.
- Operate the tractor and all controls only from the driver's seat.
- Never turn off the tractor engine whilst the PTO drive is running.
- The unit will not operate if knives are missing.
- Never exceed the recommended speed of the PTO drive, ie 540/1000 rpm
- The unit will not operate if rope or wire rope is wound around a rotor. Stop immediately and remove, if that is the case.
- Never drive with the wing in the raised position, as this is a risk that stones are thrown against the cabin (some machines).
- Use., The device exclusively for the stated, intended purpose
- Do not transport with PTO drive engaged.
- Must ensure that people do not enter the working range of the device. (risk of injury).
- Do not operate under any circumstances the PTO drive with wings folded (some machines).

# Trident HD

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## Introduction

In models Spearhead Trident 7600 HD is robust, powerful flail mower, which are easy to use and maintain. To ensure this, the operating instructions must be read carefully.

## **Safety comes first**

Work with the flail mower may only be commenced if one has made thoroughly familiar with the operating and safety instructions.

## Tractor Requirements

- It is recommended to use a tractor with a power of 150 to 300 hp.
- He must be equipped with a PTO shaft with 1000 rpm.
- The lift must not be set to generate pressure.
- Chains and stabilizers of the tractor must be checked for good condition and play, so the device is firmly seated. Only when projecting points are in order, the three-point linkage may be used.
- Lift arms must be adjusted to the same height.

# Trident HD

## Attaching to the tractor

The device is - like others - coupled with the three-point linkage of the tractor.

It must be ensured that the top link is in order and that the threads are well lubricated. The stabilizers prevent the free movement of the lower arms. Before installing the device sufficient weight is at the front to attach to the tractor. So safe driving behaviour and stability when turning on slopes are guaranteed.

When you first adjust the transmission shaft, it may be necessary to approximate the length. Profile tubes may overlap only to the extent that, under certain operating conditions, not the lower part of a section is damaged. First, the device is mounted to the back of the tractor. The transmission shaft is pulled apart and used between PTO shaft of the tractor and the shaft on the machine gearbox. The shaft parts are consecutively to bring in the shortest possible working position. If necessary, cutting a long piece of the same on the inner and outer tube.

## **ATTENTION!**

All sharp edges are filled off and remove burrs. Profile pipes are greased.

Before the establishment of the power transmission the bolts of the yokes should be cleaned and lubricated. Then the shaft is pushed until it snaps onto the PTO shaft of the tractor.

It is provided with a fixed guard, which is to attach chains to be attached using the supplied, between the device and the tractor.

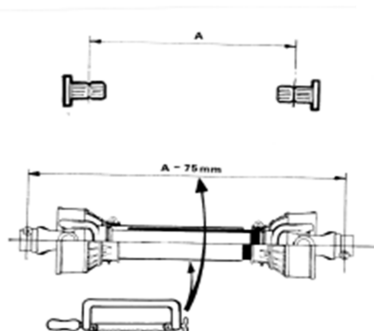
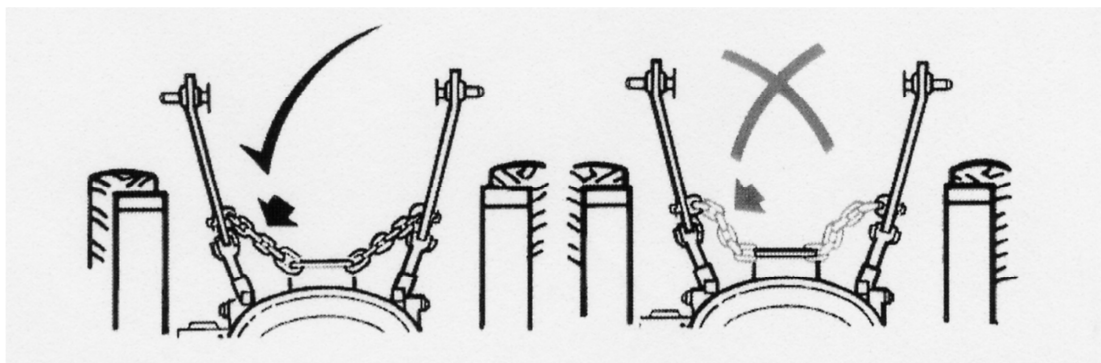


Fig 2



## **Warning**

In order to keep the device in a stable position, the retaining chains of the lift have to sit tight.

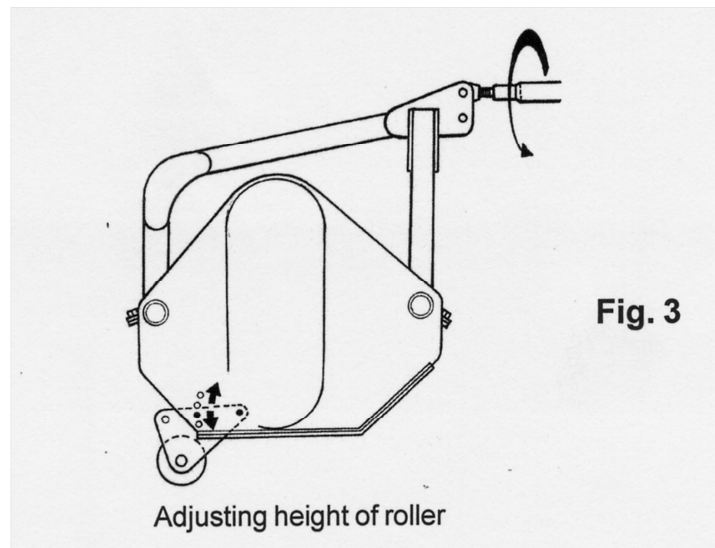
# Trident HD

## Settings

### Height Adjustment

To obtain the desired cutting height, the two adjusting seats on the rear part side panels accordingly. Fine adjustment of the cutting can be achieved by shortening or lengthening the top link between the tractor and mower (Fig. 3).

Figure 3: Height adjustment of the rollers



## Operation

To avoid damage to the device, the connection of the power transfer may take place only at low PTO speed. The rotational speeds of the device will be slowly increased to a default speed of 1000 rev / min. If sometime heavy vibration, the engine is immediately shut down and consider whether hammer knives are missing. In reviewing the safety regulations are adhered to! Thus, other parts are not damaged, the cause must be determined and to fix the error immediately.

The unit must be lowered to the ground before starting work. The total weight must be on the rear wheels so that the device can follow the ground profile. The tractors speed is regulated by the vegetation density, engine strength and adapting the site. Special attention is required when turning in particular embankments. If the radius is large enough, the apparatus need not be raised. This is only required for tight turns or reverse travel in dense ground cover.

The working result depends on the forward speed from, ie, slow speed allows finer cut, at a fast pace, however, can be managed more.

**In extreme conditions or if there is danger, on tree stumps to make large stones and other hard objects, throttling the engine speed back is recommended so that the hammer knives are not as strongly affected and damage is limited.**

# Trident HD

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## Notes on the Rotor Shaft

- The condition of the hammer knives and bolts should be checked regularly.
- When replacing the hammer knives also include bolts and nuts must be replaced.
- Original parts must be used.
- Operating with loose bolts or missing hammer knives is prohibited.
- The use of other types of hammer knives is to be avoided, as this leads to unbalanced.
- Engagement of the rotor shaft at high PTO speed is not allowed.



### **Warning**

Speeds of 1,000 rev / min is designed, it may not be operated at different speeds.



### **Warning**

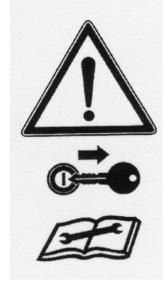
Ensure that PTO shaft and tractor engine are switched off for inspection and maintenance.

# Trident HD

## Inspection and Maintenance

### Transmission

- The oil level must be checked in the transmission, then after every 8 hours of operation before using.
- After the first 50 hours, the transmission oil has to be replaced, then every (500 hours). It is to use EP90 gear oil.
- gearbox seals should be checked regularly for leaks and replace if necessary. For good performance and long life are ensured, the operating personnel must of inspection and maintenance.
- The bolts of the gearboxes should be checked regularly for tightness.



#### **Warning**

The tightness of all bolts must be checked. A new device must be first "run in". During this time, more attention for tightness of bolts must be made.



#### **Warning**

Pay particular attention to security lock bolts. Bolts must be tightened if they are loose.



#### **Warning**

Maintenance and inspection work and repairs may only be carried out when the PTO and the tractor engine is turned off. In this way, risks to life and limb can be avoided.

### Flail Shaft (daily)

- All bearings must be lubricated daily.
- Check daily where grass, plastic or other parts have gathered.
- The condition of the hammer knives and tightness of the bolts have to be checked daily. When replacing the hammer knives, make sure that no imbalance occurs to the rotor shaft.
- Do not drive with missing hammer knives, because this will damage the bearings and in the worst case cracks can form on the cowls.
- Blunt flails require more force and the result in an unsatisfactory finish. When grinding the hammer knives wear protective clothing! It must be ensured that all hammer knives must have the same weight.
- Worn or damaged hammer knives have to be replaced and cannot be welded because they have undergone a special hardening process.
- Here, bushings, bolts and nuts should also be replaced.
- The bearings of the rotor shaft and the bolts must be checked regularly.

# Trident HD

## Lubrication

The lubrication points for the daily greasing can be seen below.

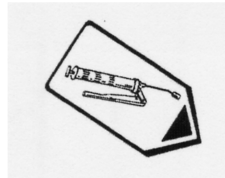


Figure 6  
Lubrication points for the cross-shaft, cross-shaft bearings, rotor and rear roller bearings.

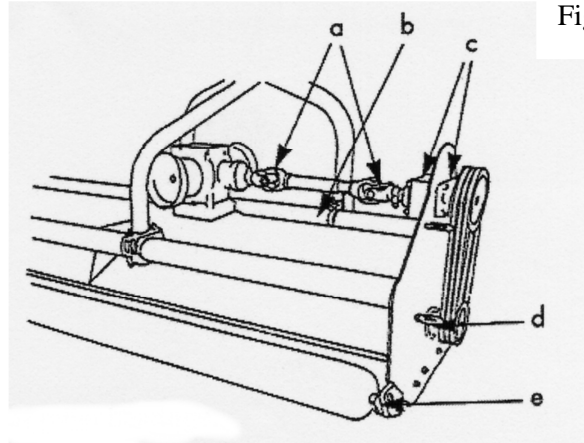


Fig 6



### Warning

Bearing for the rotor shaft and the rear roller should be lubricated at least once every 8 hours of operation and after each cleaning of the machine. In case of heavy load, the machine should be lubricated more often.

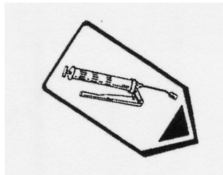


Fig 7

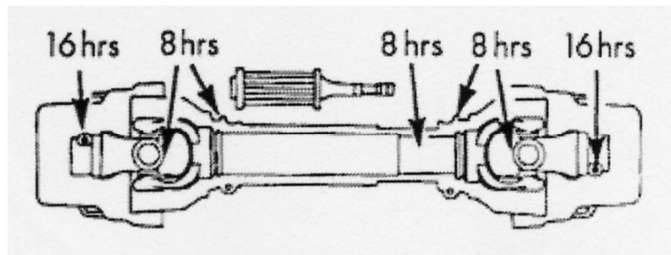


Figure 7  
Profile tubes for power transmission must be removed, cleaned and lubricated. The crosses are to be lubricated, also.

# Trident HD

## Machine Protection

To prevent transmission damage, all rotors are protected with friction clutches, which are mounted on each drive shaft. When working under extreme conditions, such as in places where there are stumps, stones and other objects, it is advisable to reduce the engine speed so that the knife can easily escape if they hit objects on the ground. Above all, use caution.

The clutch settings should not be changed without reading the operating and maintenance instructions. The compression spring of the friction clutches (Fig. 8) must never be over-tightened, as this may cause serious damage to the transmission and the drive for which the manufacturer excludes any liability.

**If the device was not in operation for some time, there is a risk that the clutch plates together rust. Putting the device under any of these circumstances in this case operation,** as in the case of the drive and the transmission are not protected against sudden loads. In order to free the clutch plates, first remove all pressure spring bolts and speed up the device for a short time, by deliberately trying to cause the clutch to slip. Finally, reset the bolt to the original length. Take care that they are not over-stressed.

If you are in doubt, please contact Customer Service or your local Spearhead dealer to get more information.

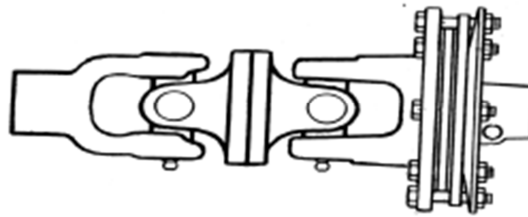


Figure 8 slip clutch



### Warning

Before performing any maintenance or repair work, first disengage the drive shaft, stop the tractor engine and remove the ignition key before leaving the tractor cab.

Upon delivery of the unit, please check that the dealer has given the correct information on the warranty. Fill in the registration card and send it to Spearhead.



# Trident HD

## Maintenance and adjustment of the slip clutch

Prior to commissioning and after long downtimes check the condition of the friction clutches. Release the spring tension and rotate the clutch while the PTO drive is being held. Once freed off, re-adjust the spring tension to the original setting.

After the work season release the spring tension and keep the clutches covered in a dry place. Check the condition of the friction plates and adjust the spring tension to the original height before use.

If the clutch has been overheated due to frequent and sudden slippages, disassemble the clutch and check. The original thickness of the clutch lining is 3.2 mm and the coating has to be replaced when it has reached a thickness of 2.5 mm. Clean all contact surfaces and replace any defective components before the clutch is re-assembled and used.



### Warning

The slip clutch is used to protect the transmission. If the blades hit a large object, they can be damaged or broken. This is to be avoided.

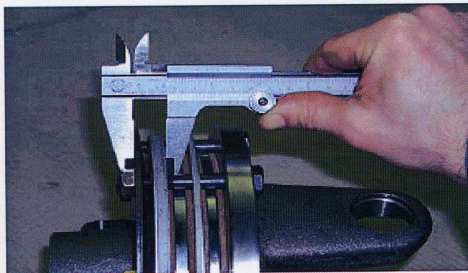


Fig 1

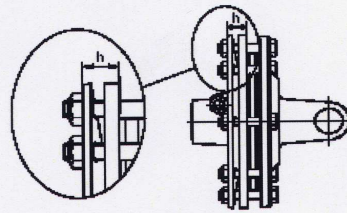


Fig 2

| Fig No. | Position    | Part No. | Setting | Comment               |
|---------|-------------|----------|---------|-----------------------|
| 2 (h)   | Input Shaft | 5770528  | 20.1 mm | Trident HD (1000 rpm) |
|         | Wing Shaft  | 5770224  | 18.5 mm | Trident HD            |
|         |             |          |         |                       |

### **ATTENTION!**

The dimension setting 'h' relates to newer types of coupling, in which the two plates, which are measured, have the same diameter.

# Trident HD

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## Storage

Before storing the unit, it must be thoroughly washed and grass and dirt must be removed. When using a high pressure or steam cleaner you should exercise caution because of the paint job. The grease gun should be used until fresh grease comes out of the grease nipples. Power transmission shaft and drive belts should be stored in a dry place. Grass juice leads to increased formation of rust! If the device is equipped with a hydraulic side shift, the rod of the ram should be retracted to protect against rust. The unit should be kept as dry as possible.

**Checklist for maintenance** (Further details are listed in the respective sections.)

**Ongoing inspection** Transmission: Flanges and bolts (seated/tight?) Check.

Flail shaft: tightness of bolts, Check (especially on stock) and condition of the hammer knives.

**Daily inspection** Check V-belt tension.

Check the gearbox oil level.

Lubricate all parts of the drive shaft.

All locations. See Lubrication Drawing.

**Annual inspection** Oil levels in gearboxes ( EP-90).

## **NOTE**

Couplings and transmission remain very hot. **Do not touch directly after use!**

# Trident HD

## Torque settings

The specified values are recommended max. Torques.

| Size | Steel Quality | Description            | Torque Nm. |
|------|---------------|------------------------|------------|
| M 8  | 12.9          | Easy-Lock              | 45         |
| M10  | 8.8           | At various points      | 65         |
| M12  | 8.8           | At various points      | 114        |
| M16  | 8.8           | Bolt the rolling plate | 280        |
| M14  | 10.9          | Bolt for hammer knives | 120        |

## Troubleshooting and Repair

| Problem                                   | Cause   | Remedy   |
|---|---|--|
| Transmission gets too hot..               | Too little oil?<br>Wrong type of oil.<br>Overload.<br>Incorrect pto rpm.  | Check the oil level.<br>Check oil.<br>Driving pace slowed.<br>Ensure the correct speed.  |
| Abnormal belt wear                        | Poor condition of the belt and pulley.<br>Pulley with unbalance<br>Incorrect belt tension.<br>Overload.   | If necessary. exchange.<br>Align pulleys.<br>According to tighten.<br>Driving pace restrict or set a higher cutting height.  |
| Wear of shaft drive and yokes             | Working angle too large.<br>Tubes too long, so they press against the bottom guard.<br>Lack of maintenance / care.<br>Power transmission is too strong. | Setting the correct angle.<br>Shorten to correct length.<br>All yokes are lubricated and clean recommended.<br>Choose tractor that matches the device.   |
| Cutting quality                           | Hammer knives worn.<br>Speed or direction of rotation of the beater shaft.<br>Type of grass or weed.  | Replace worn hammer knives.<br>Check the speed. Check device type - mounting back or front?<br>Appealing to the company Spearhead. There are several types of hammer knives. The texture of the grass varies from year to year.  |
| Error in the operation of the rotor shaft | Imbalance.<br>Wires / cords have become entangled.<br>Lack of maintenance / care.<br>Water in the rotor shaft.  | See "Vibration of the rotor shaft".<br>Replace the bearings.<br>Rotor shaft balance / check.<br>Replace the bearings.<br>Use caution when driving through water courses and when washing. After operation in water or being washed, ensure bearings are generously lubricated. |



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