

# SPEARHEAD

## XY 150 WOOD CHIPPER



Edition 1.0 - February 2018  
Part No. 8999110

# HANDBOOK

# SPEARHEAD XY 150

## 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

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.

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

##### TORQUE SETTINGS FOR HYDRAULIC FITTINGS

HYDRAULIC HOSE ENDS			PORT ADAPTORS WITH BONDED SEALS		
BSP	Setting	Metric	BSP	Setting	Metric
1/4"	18 Nm	19 mm	1/4"	34 Nm	19 mm
3/8"	31 Nm	22 mm	3/8"	47 Nm	22 mm
1/2"	49 Nm	27 mm	1/2"	102 Nm	27 mm
5/8"	60 Nm	30 mm	5/8"	122 Nm	30 mm
3/4"	80 Nm	32 mm	3/4"	149 Nm	32 mm
1"	125 Nm	41 mm	1"	203 Nm	41 mm
1.1/4"	190 Nm	50 mm	1.1/4"	305 Nm	50 mm
1.1/2"	250 Nm	55 mm	1.1/2"	305 Nm	55 mm
2"	420 Nm	70 mm	2"	400 Nm	70 mm

## 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.

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**This machine is produced by RABAUD S.A.S. on behalf  
of Spearhead Machinery Limited.**

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

We, RABAUD S.A.S., Bellevue, 85110 Sainte Cecile, France  
hereby declare that:

*Product*.....

*Product Code*.....

*Serial No.*.....

*Type*.....

Manufactured by: RABAUD S.A.S., Bellevue, 85110 Sainte Cecile, France

In terms of its design, method of construction and execution thereof, the item of machinery described above complies with the basic health and safety regulations of the respective EU Directives. 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 RABAUD S.A.S.)

*Date*

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# SPEARHEAD XY 150

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## INTRODUCTION

The Spearhead XY 150 is a professional wood chipper designed to shred a variety of different plant matter (pieces of wood, branches, plants). It reduces the volume of green waste and transforms it into material that can be reused in the form of chips of a known size, RCW (Ramial chipped wood), compost or mulch.

The XY 150 features a “5 in 1” rotor, featuring 3 standard modes and 2 optional modes in order to be able to mulch for a variety of different uses.



## 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 operator**



# SPEARHEAD XY 150

## GENERAL INFORMATION

Read this manual before fitting or operating the machine or accessory. Whenever any doubt exists contact your local dealer or the Spearhead Machinery Service Department for assistance.

**Only use 'Genuine Spearhead Parts' on Spearhead Machinery and equipment.**

**DEFINITIONS:** *The following definitions apply throughout this manual;*

### DANGER



**DANGER:** Alerts to a hazardous situation which will result in death or serious injury if not observed carefully.

### WARNING



**WARNING:** Alerts to a hazardous situation which will result in death or serious injury if not observed carefully.

### CAUTION



**CAUTION:** Alerts to a hazardous situation which could result in damage to the machine and/equipment if not observed correctly.

### NOTICE

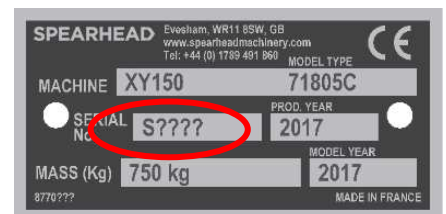
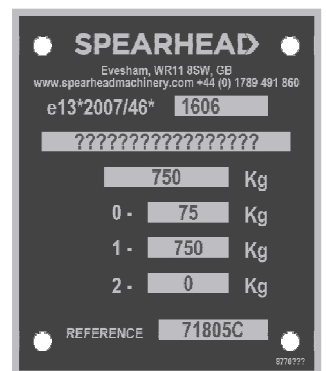


**NOTICE:** Specific or general information considered important or useful to emphasise.

## SERIAL PLATE

All machines are equipped with a serial plate containing important information relating to the machine including a unique serial number used for identification purposes.

**Note:** Images in this manual are provided for instruction and information purposes only and may not show components in their entirety. In certain instances images may appear different to the actual machine; when this occurs the general procedure will be basically the same.



## SAFETY

### SAFETY FOR THE OPERATOR

- Follow all the safety and usage instructions in this instruction manual.
- The use of this machine is reserved to people who have reached the minimum age laid down in law (18 years of age) and who are capable of operating it, both physically and mentally.
- Using the machine while under the influence of alcohol and/or any other narcotic products is strictly prohibited.
- We would remind you that any modifications to the machine or any use other than that specified in this manual will disclaim all liability immediately.
- A single authorised operator must be in charge of the control system during use.
- This machine is designed to be used during daylight hours, otherwise adequate artificial lighting must be used.
- Follow the Highway Code when travelling on public roads.

#### NOTICE

**All safety instructions must be followed.**



### SAFETY MECHANISMS IN THE DESIGN

- All possible risk areas were analysed during the project design phase and all necessary precautions have been put in place to prevent accidents involving people.
- To guarantee safety, the installation may be equipped with:
  - Protective housings or guards
  - Safety sensors
  - Emergency stop buttons
  - Other devices

#### WARNING



**It is strictly prohibited to dismantle or disconnect the safety mechanisms fitted by the manufacturer.**

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## SAFETY INSTRUCTIONS REGARDING TRAILER TOWING

- Before hitching up or towing the XY150 wood chipper please refer to the specific Instruction Manual for guidance on the correct towing and handling of trailers.
- **INF30. The DVLA “Requirements for Towing Trailers in Great Britain”.**  
Available from:  
[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/447803/INF30\\_130715.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/447803/INF30_130715.pdf)
- **The DVLA Quick Guide to Towing Trailers.**  
Available from:  
[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/516716/quick-guide-to-towing-non-articulated-trailers.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/516716/quick-guide-to-towing-non-articulated-trailers.pdf)
- **The National Trailer and Towing Association’s “Guide to Safe and Legal Towing”.**  
Available from:  
<http://www.ntta.co.uk/uploads/downloads/SafeLegalTowingShort.pdf>

## SAFETY INSTRUCTIONS REGARDING MAINTENANCE

- Before starting machinery maintenance works, read the maintenance instructions carefully
- The machine must be maintained stable at all times during maintenance operations.
- Never carry out any lubrication, maintenance or adjustment operations when the machine is in operation. Activate the controls until all pressure in the circuit is evacuated.
- Be careful when opening the filling caps or plugs. Check that the tanks are properly depressurised before removing the caps or plugs.
- Regularly check that nuts and bolts are tightened; tighten if required.
- When replacing parts, wear gloves and use the appropriate tools.
- Regularly check all protective devices that are subject to wear, replace where necessary.

## SAFETY INSTRUCTIONS REGARDING THE HYDRAULIC SYSTEM

- Regularly check the hydraulic ducts and replace in the event of wear or deterioration. The replacement ducts must correspond to the technical properties stipulated by the manufacturer.
- When testing for leaks, use appropriate means taking into account the possible risks of injury. Pressurised liquid escaping from the system may have enough force to penetrate skin and cause serious injury. To prevent accidents, release the pressure before disconnecting the hydraulic ducts. Before restoring pressure, check that all connections have been tightened.

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- Handle used oils and lubricants and worn filters in compliance with the ecological standards in effect. The improper disposal of waste may harm the environment. Some Spearhead chipper equipment may contain elements such as hydraulic oil, capable of polluting the environment after disposal. Collect the drained liquids in water-tight containers. Do not use food or drink containers as these may confuse and encourage the drinking of their contents. Do not pour waste on the ground, into the sewer or any other location capable of resulting in water pollution.

## SAFETY INSTRUCTIONS REGARDING BATTERIES

- Batteries contain a harmful and hazardous acid. Wear personal protective equipment (*glasses, gloves*) and avoid contact with skin during handling. In the event of contact with skin, rinse with plenty of running water for 15 minutes. In the event of contact with the eyes, rinse with plenty of running water for 15 minutes and immediately call a doctor/physician.
- Be careful not to short circuit the battery during its installation or removal. To disconnect the battery, we recommend unplugging the wires in the following order:
  - Firstly disconnect the (-) terminal
  - Then disconnect the (+) terminal
- To reconnect the terminals, repeat this operation in reverse order ((+) terminal followed by (-) terminal).
- When recharging with a battery charger, check that the latter is not in operation before connecting the wires to the battery terminals.
- The gas released when charging the batteries is explosive; this operation must therefore take place in an aired room, away from all sources of ignition (flames, sparks).



### WARNING!

Before attempting to repair, maintain or adjust the machine, always make sure that the tool has stopped, the ignition key is removed, hydraulics disconnected, hand brake secured and the tool is safe on the ground.



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## SAFETY AND INSTRUCTIONAL DECALS

- The residual hazards identified following a risk analysis are indicated by pictograms so as to warn the operator of the dangers linked to use of the machine.
- These pictograms must be legible and understood by all the machine's users.
- It is essential that damaged stickers are replaced immediately if damaged or lost.
- If any parts are changed, ensure that the corresponding stickers are applied to these new parts.



**Caution**  
Read the instruction manual.



**Caution**  
Hot Surface  
Maintain a safe distance from the hydraulic power unit's hot surfaces.



**Caution**  
Pressurised Fluid  
Risk of injury, refer to the manual before working on the machine.



**Caution**  
Belts  
Do not enter this area while the machine is running: risk of being grabbed.



**Caution**  
Pinch Points  
Risk of hands being crushed.



**Caution**  
Entanglement  
Do not enter the feed roller area while the machine is running: risk of being grabbed.



**Caution**  
Sharp Areas  
Risk of fingers being severed.



**Caution**  
Entanglement  
Do not enter the feed hopper area while the machine is running: risk of being grabbed.



**Caution**  
Distance From The Machine  
Keep away from the machine while in operation.



**Caution**  
Welding  
Before doing any welding on the machine, follow the instructions in the manual.



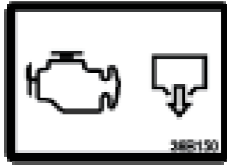
**Caution**  
Pressure Washers  
Do not use high pressure cleaners in this area.



**Caution**  
Risk of projections  
Keep a safe distance from the ejection area.

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**Diesel Engine  
Drain Plug**



**Check that  
bolts are tight.**



**Lifting Point**



**Emergency  
Shutdown**



**Guaranteed  
Noise  
Emissions**



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## PERSONAL PROTECTION EQUIPMENT (PPE)

***"The person in charge of the establishment must provide workers with appropriate information; those workers must then use personal protection equipment."***

- The establishment manager must therefore ensure that workers use suitable PPE for the task to be carried out and for the work site.
- PPE means equipment or resources that are worn or held by persons so as to protect themselves from one or more hazards that may present a threat to their health and safety.



**Compulsory Body Protection**  
(tailored work clothes with tight sleeves)



**Compulsory Hand Protection**  
(gloves)



**Compulsory Ear Protection**  
(ear defenders, ear plugs)



**Compulsory Eye Protection**  
(protective glasses)

**WARNING**



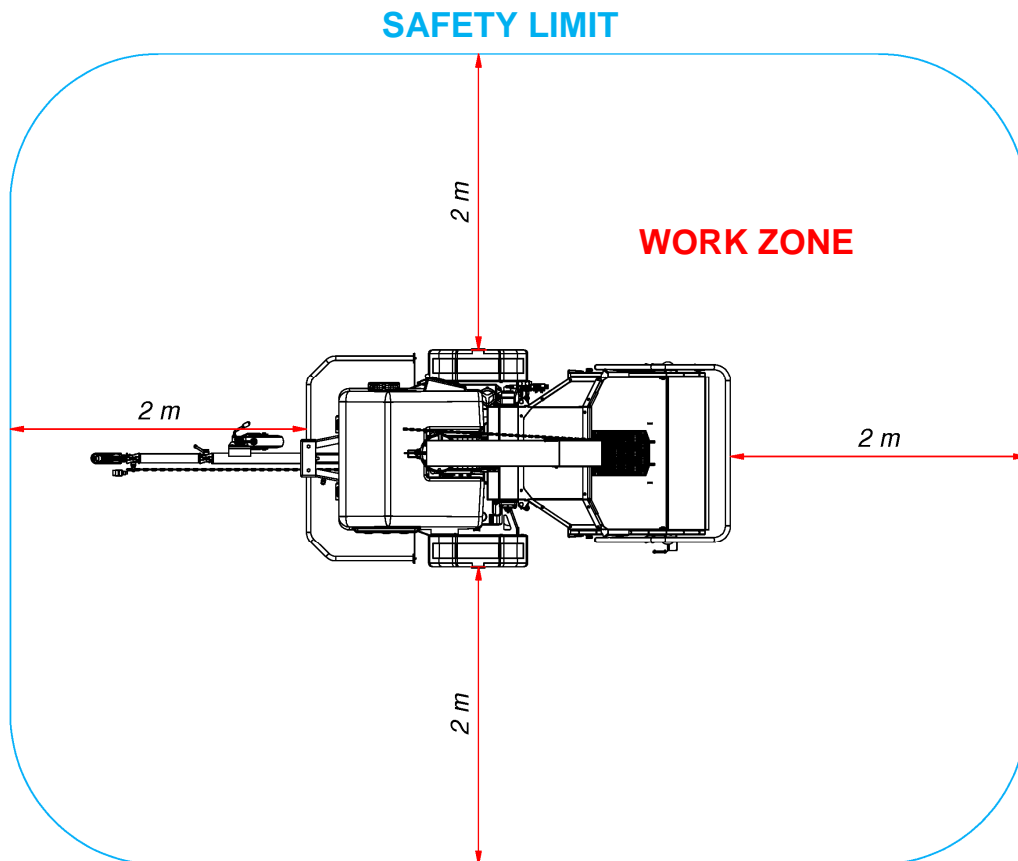
**All unauthorised personnel must stand outside the safety limit.**



# SPEARHEAD XY 150

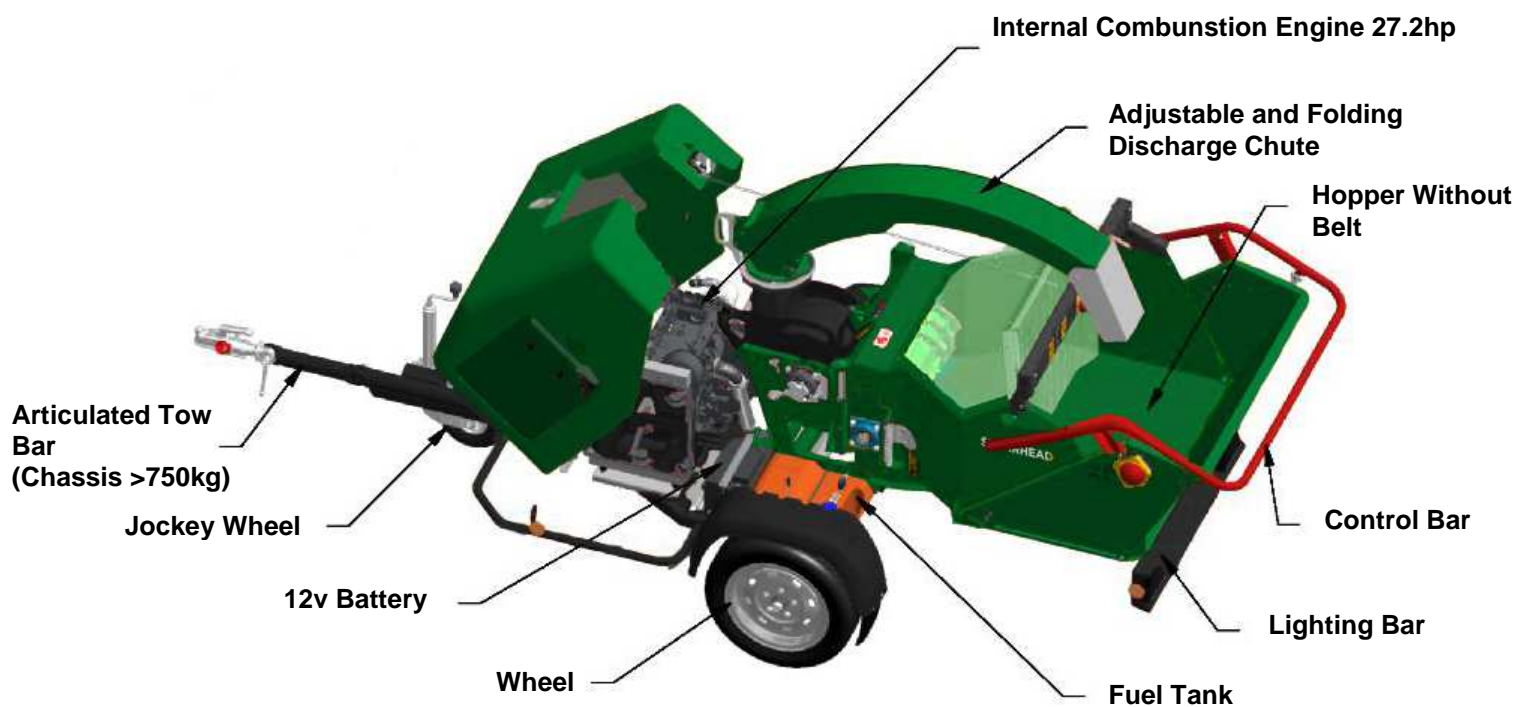
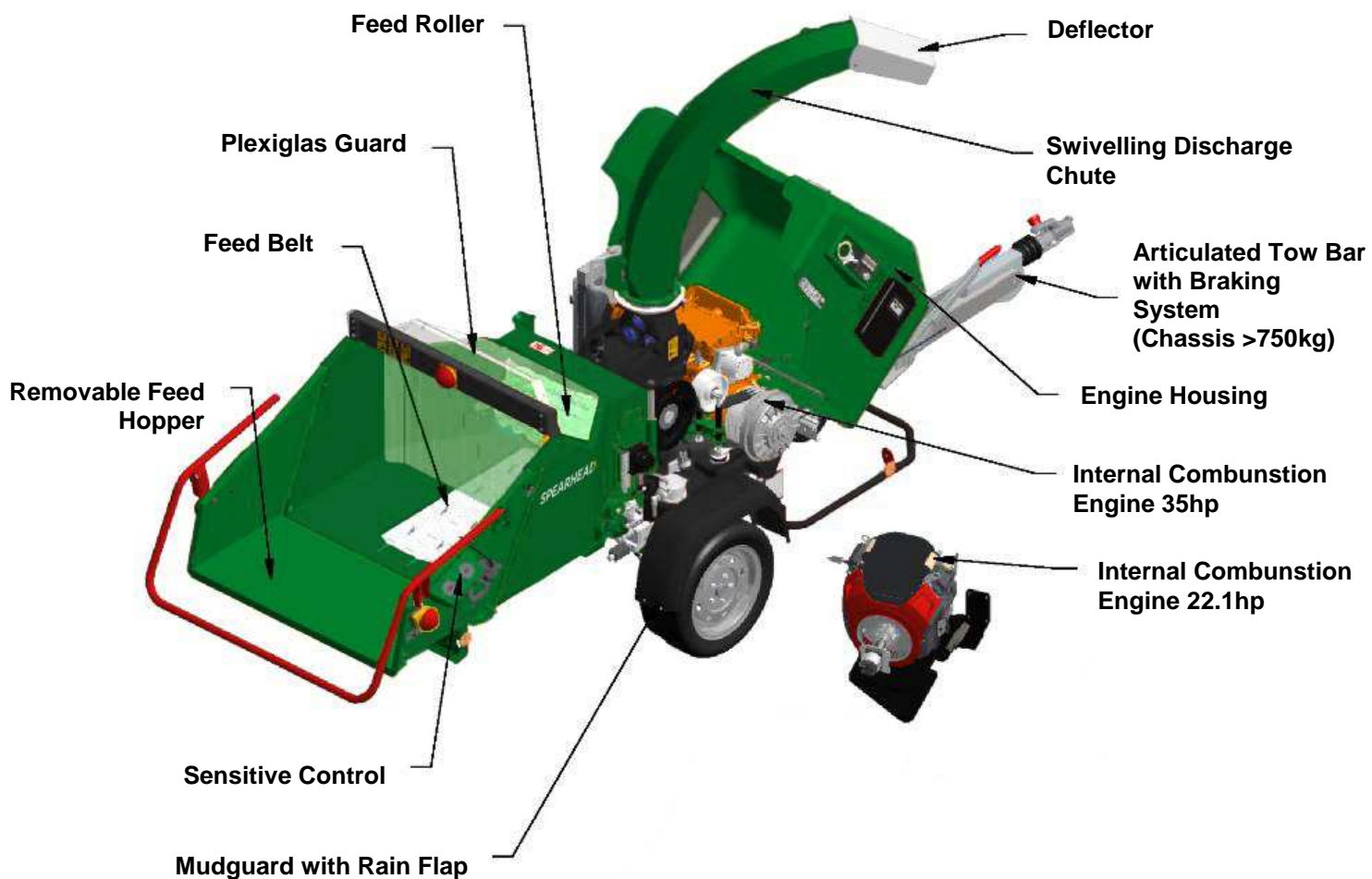
## SAFETY/WORK ZONE

- The "**Work Zone**" is the immediate environment around the machine where **only** the operator wearing personal protection equipment may stand while the machine is running.
- The "**Safety Limit**" defines the zone beyond which persons cannot be affected by movements or flying objects caused by operation of the machine.



# SPEARHEAD XY 150

## COMPONENTS IDENTIFICATION



# SPEARHEAD XY 150

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## STANDARD FEATURES

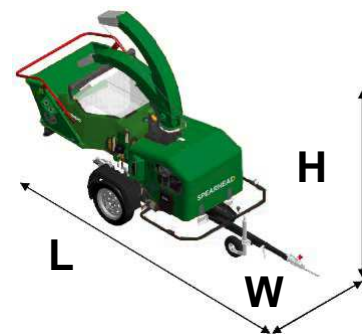
- Removable feed hopper.
- Evacuation hopper plicate and can be rotated through 360° with locating handle and adjustable deflector, secured by a chain.
- NOSTRESS system with 3 pre-set positions in manual mode / 1 default setting with automatic accelerator (option).
- Feed roller with converging pitch mounted horizontally.
- Hydraulic control with over roller speed via external knob.

## OPTIONAL FEATURES

- NOSTRESS clamping in 1 position (best suited for leasings).
- Spare wheel (to be carried in towing vehicle).
- Stabalising leg stand.
- Wheel chock + support.
- Parking Brake.
- 42/68 ring for trailer (<750kg chassis only).
- 500mm Triflash LED Triangle.
- LED rotating beacon.
- Base for chain saw/ hedge shears.
- Tool holder with handle (shovel, rake e.t.c.).
- Balance support for operation in 1-blade mode.
- Kit with 2 rows of 8 flails for operation 4 rows of flails.
- Additional sensitive control (only for controlled machinery with safety bar + sensitive control).

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## SPECIFICATIONS



### Standard Overall Dimensions

	LENGTH (L)	WIDTH (W)	HEIGHT (H)	HEIGHT (WITHOUT HOPPER) (H)
WORKING	CHASSIS <750kg 4.365m	1.855m	2.370m	1.485m
	CHASSIS >750kg 4.700m			
TRANSPORT	CHASSIS <750kg 4.170m	1.445m	Folding Chute 1.800m	
	CHASSIS >750kg 4.575m		Stationary Chute 2.370m	

## NOTABLE QUANTITIES

- **Weight** – 635 to 800kg
- **Wood Intake Opening Size (L x H)** – 210 x 165 mm
- **Maximum Wood Diameter** – 150mm
- **Feed Hopper Size (L x W x H)** – 1.72 x 1.03 x 0.73m
- **Loading Height** – 750mm
- **Hourly Production (estimated)** – 3000 to 4000kg (9 to 12 MAP)

## ROTOR & ROLLER

- **Rotor** – 5-in-1 with three standard modes
- **Rotor Rotation Speed** – 2250rpm
- **Width of Feed Roller** – 600mm

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## CHASSIS SPECIFICATIONS

	CHASSIS PART NO	
	71811C	71812C
TRAVEL SPEED	130 kph	
HITCH	50 mm dia. ball	
NUMBER OF AXLES	1	
STABILISATION	Jockey wheel	
GROSS VEHICLE WEIGHT	< 750 kg	> 750 kg
REQUIRED DRIVING LICENCE	Car driver's licence + registration document for chipper	B+E driver's licence + registration document for chipper

## ENGINE SPECIFICATIONS

	ENGINE PART NO				
	71806C	71807C	71808C	71853C	71854C
MANUFACTURER	Honda	Lombardini	Lombardini	Kolher	Kolher
MODEL	GX 690	LDW 1003	LDW 1404	CH 940	CH 980
MAX. POWER	22.1 HP - 16.5 kW	27.2 HP - 20 kW	35.2 HP - 26 kW	34 HP - 25.4 kW	38 HP - 28.3 kW
NUMBER OF CYLINDERS	2 - air cooled	3 - water cooled	4 - water cooled	2 - air cooled	2 - air cooled
FUEL	Petrol	Diesel / NRD <sup>(1)</sup>	Diesel / NRD <sup>(1)</sup>	Petrol	Petrol
TANK CAPACITY	12 Litres				
OIL SUMP CAPACITY	1.9 litres	2.4 litres	3.2 litres	1.9 litres	1.9 litres
THEORETICAL AVERAGE CONSUMPTION	6.7 litres/hour	2.5 to 3.5 litres/hour	4 to 5 litres/hour	8 litres/hour	9 litres/hour
WEIGHT	44.6 kg	80 kg	98 kg	59 kg	59 kg

(1): To run the engine on non-road diesel, the diesel tank must be drained and the filter replaced. Proceed similarly to return to standard diesel.

### CAUTION



**Non-road diesel (aka red diesel) and heating oil or standard diesel cannot be mixed; the filter will block in just a few minutes.**

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## LIVING WITH THE MACHINE

### Lifting & Handling

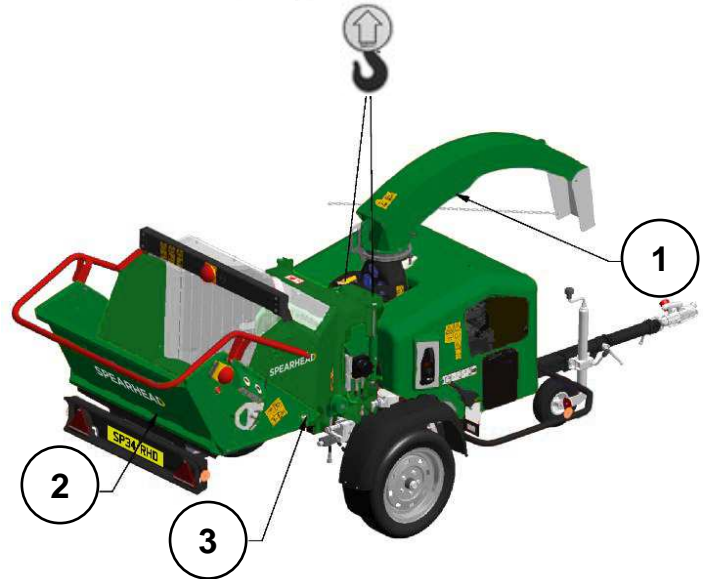
Lifting points on the machine are indicated by this symbol:



Handle the machine using the two anchor points only!

The machine should be lifted:

1. With the discharge chute in forward position, pointing forwards.
2. With the feed hopper in the raised position.
3. With the feed hopper locked.



### WARNING



Always use the recommended lifting points when lifting the machine.

### Manoeuvring

The wood chipper must always:

- Be placed on a flat, stable surface.
- Be and remain stationary.
- Coupled to the towing vehicle

In "WORK" position:

- The feed hopper should be lowered and locked.
- The discharge chute adjusted as per the safety zones described safe for use. See "Adjusting The Chip Evacuation Chute" section.

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## Hitching & Unhitching

For hitching and unhitching operations, please refer to the specific Instruction Manual for trailers. See the “Safety Instructions Regarding Trailer Towing” section. Comply with the safety instructions and instructions for use stipulated in this document.

### WARNING



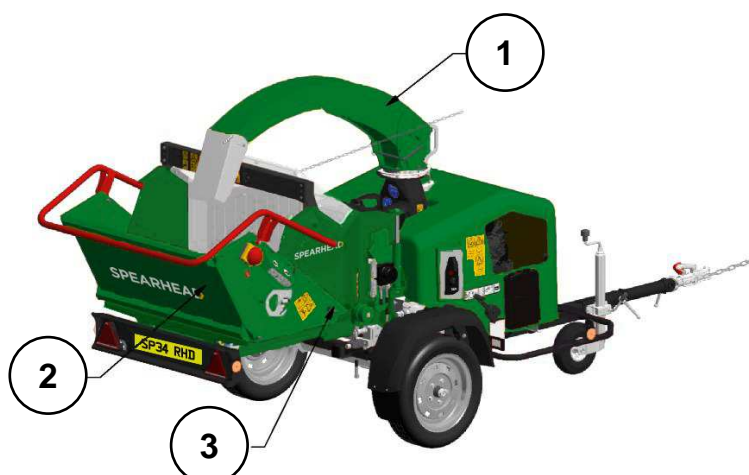
**Be extremely careful when hitching/unhitching, as the hitching zone is a high-risk area. Comply with the safety instructions for these operations.**

## Transporting The Machine

The machine is transported:

1. With the discharge chute folding and pointing backwards.
2. With the feed hopper in the raised position.
3. With the feed hopper locked.

- Tighten the tank's air vent.
- For the safety rules regarding transport on public roads, please refer to the specific Instruction Manual for trailers. See the “Safety Instructions Regarding Trailer Towing” section.



### CAUTION



**The engine must be turned off during transport.**

### NOTICE



**With the folding chute, be sure not to interfere with the emergency shutoff button when the chute is being tilted.**

### NOTICE



**Always transport the machine as recommended.**

# SPEARHEAD XY 150

## Storage



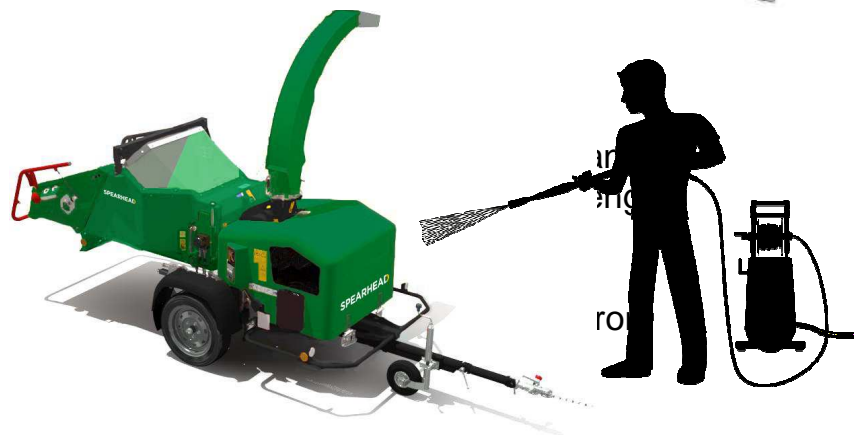
The machine must be stored:

- With its feed belt cleaned.
- With the feed hopper raised and locked.
- With the discharge chute pointing backwards.
- On flat, stable ground.
- In a dry, ventilated place away from all sources of heat and condensation.



## Cleaning

- High-pressure clean the entire machine, except for the hydraulic electrical parts and the diesel radiator.
- The use of acetone is recommended to remove resin the polyester cover.



## Disposal

- It is the responsibility of the person/organisation in possession of the waste to dispose of it or have it disposed of.
- Prohibited: waste dumping, processing in an unauthorised site, mixing, raw waste storage, etc.
- Waste must be collected, transported, stored, sorted and processed.
- To dispose of grease and oil, refer to the manufacturer's data.
- At the end of its life, our equipment must be processed according to current laws and directives applying to industrial products: contact component manufacturers for the particular specifications.



# SPEARHEAD XY 150

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## BEFORE STARTING WORK

### Description of the XY 150 Wood Chipper

The Spearhead XY 150 is a professional wood chipper designed to shred a variety of different plant matter (pieces of wood, branches, plants). It reduces the volume of green waste and transforms it into material that can be reused in the form of chips of a known size, RCW (Ramial chipped wood), compost or mulch.

The XY 150 features a "5 in 1" rotor, featuring 3 standard modes and 2 optional modes in order to be able to mulch for a variety of different uses.

### Modes

#### **"2-BLADE"**

- Chipping with 2 blades only.

This mode is recommended for producing clean wood chips for use as fuel or mulch.

#### **"2 x 8 FLAIL "**

- Shredding with 16 flails only.

This mode is recommended for grinding soiled wood to reduce its volume for use as compost, RCW or fibre mulch.

#### **"MIXED"**

- Chipping and shredding with blades and flails.

This mode is recommended for grinding clean wood to reduce its volume for use as compost, mulch or clean RCW.

### Optional Modes

#### **"1-BLADE"**

- Chipping with 1 blade only.

This mode is recommended for producing clean wood chips for use as large-size fuel.

#### **"4 x 8 FLAIL "**

- Shredding with 32 flails only.

This mode is recommended for grinding soiled wood to reduce its volume for use as compost, RCW or fibre mulch.

# SPEARHEAD XY 150

## DEFINITIONS IN MATERIAL

### Fuel

- The term fuel refers to the re-use of wood as a fuel. The chips produced by the wood chipper measure 2 to 5 cm long by 1 to 2 cm thick. The requirements as to their quality (size and humidity) depend directly on the size of the boiler.

### RCW

#### *(Ramial chipped wood)*

- RCW is a technique from Canada for producing and using chipped tree branches. The RCW technique involves chipping fresh young deciduous tree branches (rich in nutrients) of a diameter less than 7 cm and mixing the chips into the surface layer of the soil. The resulting compost is greatly valued as an organic fertiliser.

### Compost

- Prior shredding breaks down the timber's fibrous structure and chips the soft parts to provide a greater surface area for bacteria to attack. The waste is piled up on an impermeable surface where it undergoes an initial fermentation phase (4 to 6 weeks for industrial production). The resulting compost is greatly valued as an organic fertiliser.

### Mulching

- Mulching is a technique that involves covering the soil around plants with a material such as wood chips. As well as keeping the soil moist and warm, it prevents weeds growth. Organic mulch also nourishes the soil and improves its structure by limiting compacting.

### WARNING



**Do not use blade or mixed modes to chip soiled wood. The manufacturer disclaims all liability in the event of use other as specified in this manual.**

	STANDARD			OPTIONAL	
	2 x BLADE	2 x 8 FLAIL	MIXED	1 x BLADE	4 x 8 BLADE
<b>CLEAN WOOD</b>	FUEL MULCH	RCW COMPOST FIBRE MULCH	RCW COMPOST FINE MULCH	FUEL	RCW COMPOST FIBRE MULCH
<b>SOILED WOOD</b>	N/A	RCW COMPOST FIBRE MULCH		N/A	RCW COMPOST FIBRE MULCH

### Inspection On Delivery

- On delivery, make sure the machine is as specified on the original order.
- Also check its condition, in order to make a claim on the carrier, if necessary.

# SPEARHEAD XY 150

## SETTING UP THE MACHINE FOR WORK

### Adjusting The Rotor

The XY 150 features a “5 in 1” rotor, featuring 3 standard modes and 2 optional modes in order to be able to create material suitable for a variety of different uses.

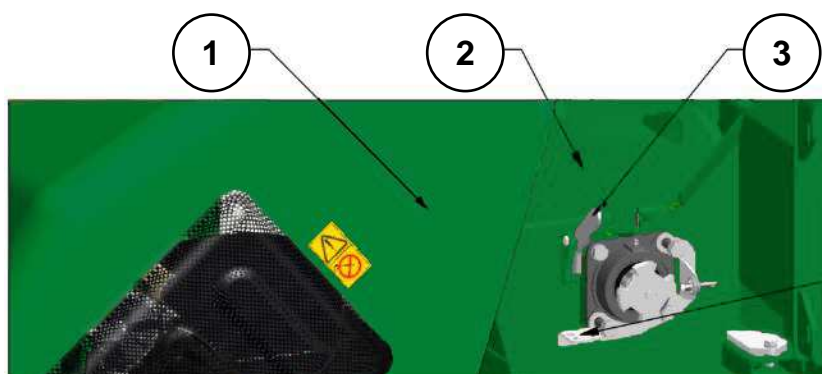


**When your machine is delivered, the rotor is in blade-only mode. See "Modes" and "Optional Modes" sections for the characteristics of the different chipping modes.**

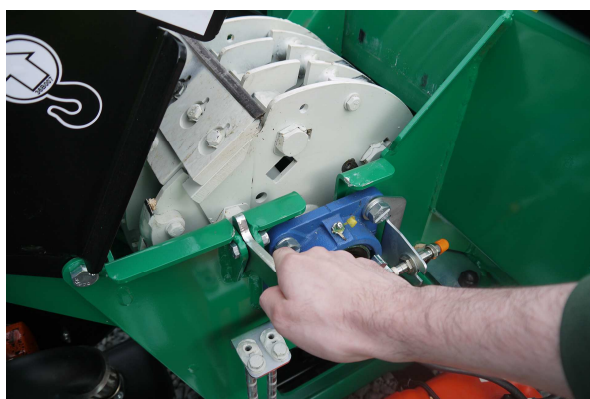
#### Before changing the rotor mode, you must:

- Disable the machine – See "Locking / Unlocking" section of this manual.

1. Open the engine cover (1).
2. Open the rotor housing (2).
3. Turn the rotor manually and lock it in position with the rotor safety device (3).



- Set the rotor to the desired function (next page) and tighten to the required torques given at the top of page 29.
- When the rotor is set as desired, close and secure the guard (4).



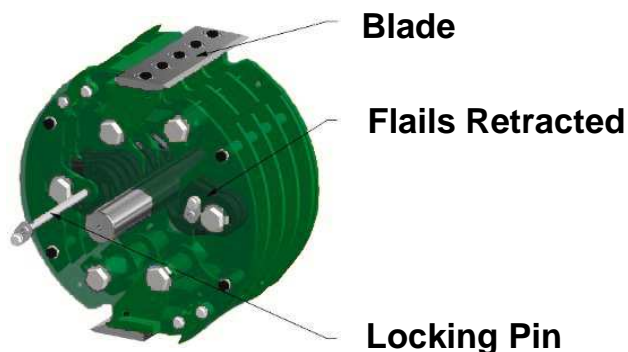
# SPEARHEAD XY 150

## SETTING A BLADE MODE

### 2-Blade Mode

To use the machine in 2-blade mode, you must:

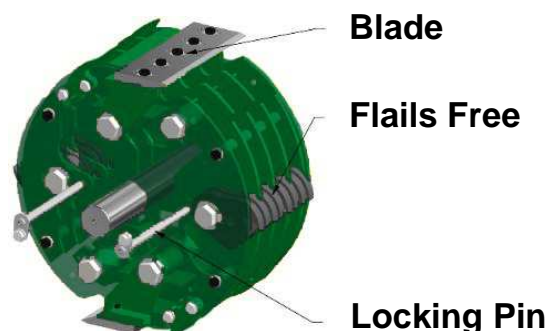
- Lock the rows of flails in the retracted position using the locking pin.



### Mixed Mode

To use the machine in Mixed mode, you must:

- Remove the locking pins of the flails and place them on their supports.
- Check that the flails rotate freely around the pin.



### WARNING

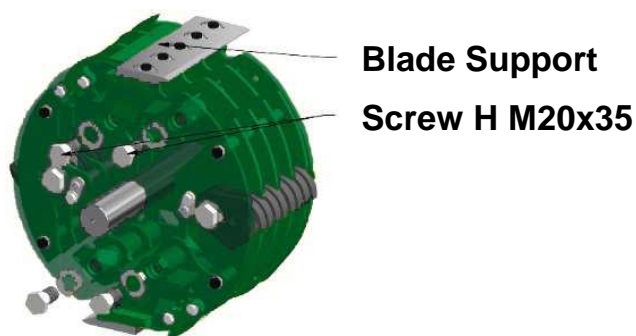


For the other modes, the replacement of at least one blade support is necessary.

### Dismantling The Blade Support

To dismantle the blade support, you must:

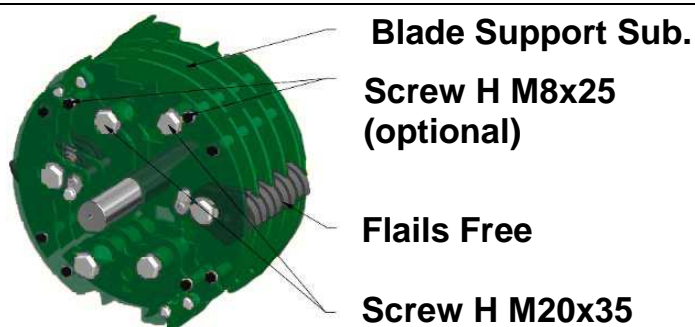
- Unscrew and remove the 4 screws. H M20x35.
- Remove the blade support from the rotor.



### 2 x 8 Flail Mode

To use the machine in 2 x 8 flail mode, you must:

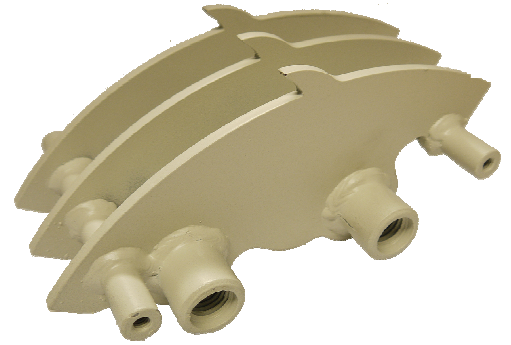
- Place the blade support substitutes in the correct places using the specified tightening torque.



# SPEARHEAD XY 150

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For both option modes, whether the 1-blade mode or the 4x8 flail mode, the procedure is identical to the 2x8 flail mode. Replace the blade support(s) with the desired tool while using the specified tightening torque.



## Torque Settings

The torque setting for the screws are as follows:

- Screw H M20x35 = **70 Nm**
- Screw H M8x25 = **31 Nm**

**Blade Support**

### CAUTION



**Do not use flail mode without balancing supports, as this would result in a major risk of damage to the wood chipper.**

## Adjustment Of Components

- Except where indicated to the contrary, all electrical and hydraulic settings are pre-set in our workshops.
- If you need to replace an assembly, we strongly recommend that you contact Spearhead Machinery for any information on how it should be set up.

### NOTICE



**Mechanical settings are made with the machine disabled (refer to locking/unlocking machine section) by qualified, trained personnel.**

# SPEARHEAD XY 150

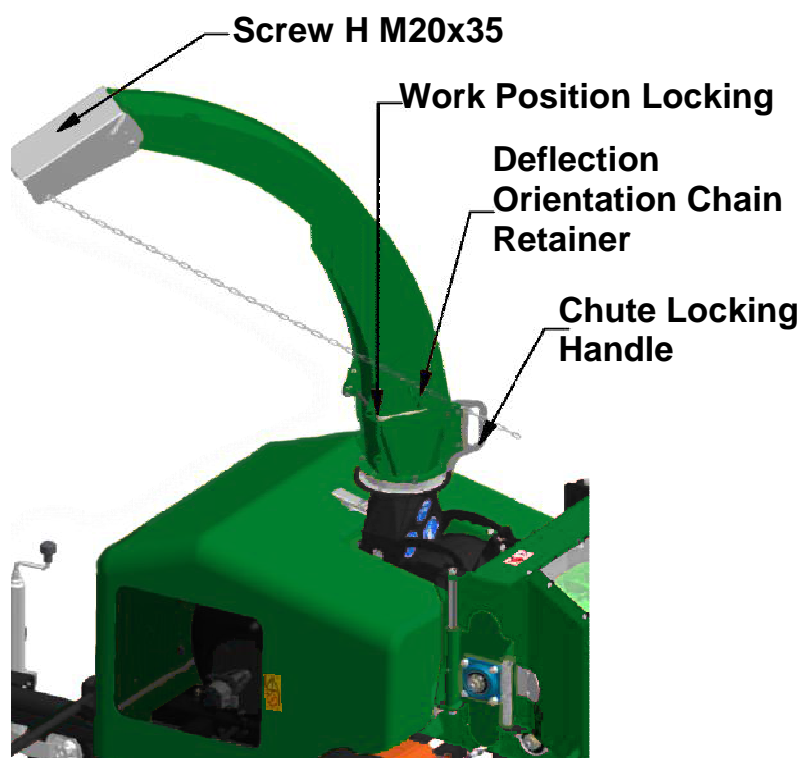
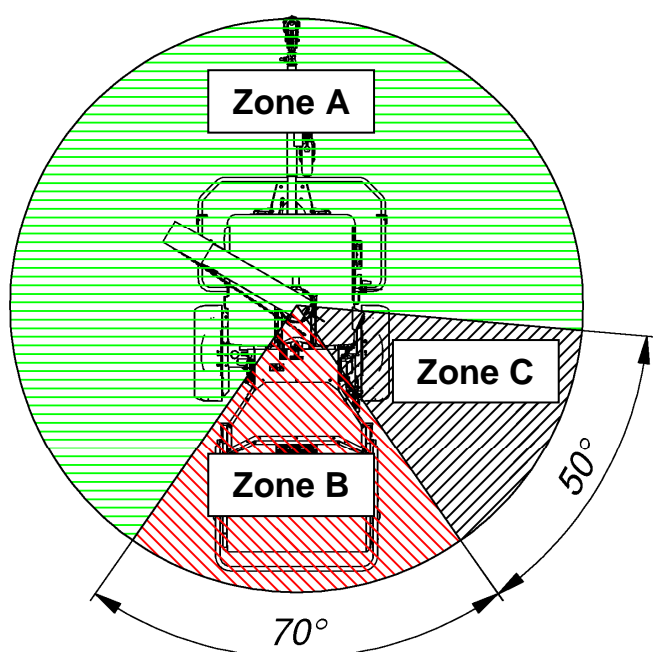
## Adjusting The Chip Evacuation

- The chips are ejected via the discharge chute and channelled via the adjustable deflector.
- The chute may be rotated through 360° thanks to the ring bearing, but it is limited to 290° while working. The feed roller is prevented from rotating by a sensor when the chute is turned towards the operator station (Diagram 1).

### Zone Definition:

- A. Recommended ejection zone.
- B. Danger zone. Feed roller stopped
- C. Ejection zone not recommended. Access to the Nostress and internal combustion engine controls.

Diagram 1



### WARNING



The direction of the discharge chute must be adjusted when the machine is positioned for operation (see Manoeuvring chapter). Make sure that there is no-one in the way of the discharge chute before or during operation. We strongly advise against changing position while chips are being ejected.

# SPEARHEAD XY 150

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## Setting The Operational Speed Of The Machine – “NOSTRESS”

### NOSTRESS

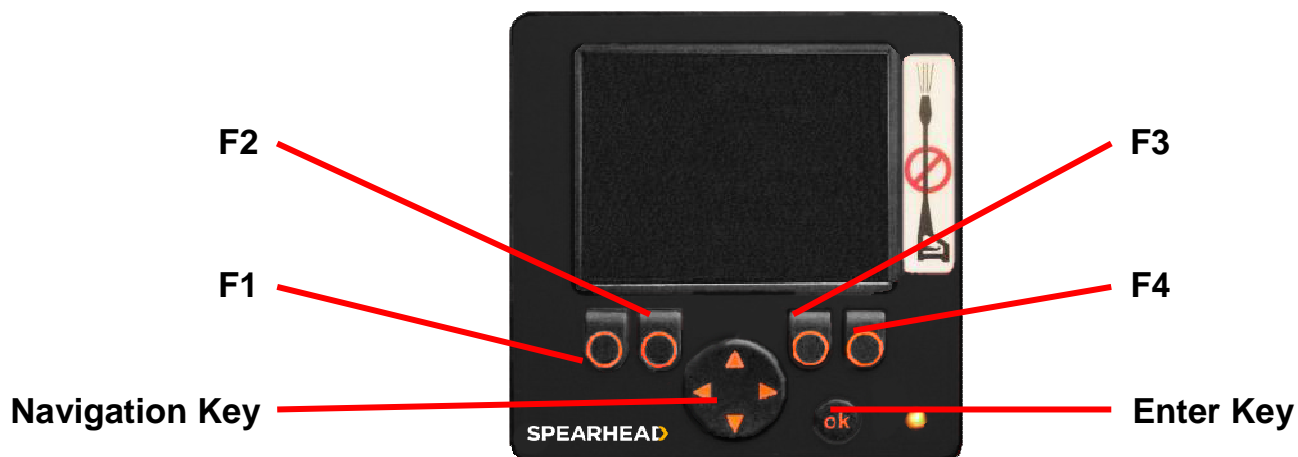
- The "NOSTRESS" anti-blockage system automatically adjusts the feed rate relative to the rotor's rotation speed. If the rotor rotation speed drops, the feed roller stops. This prevents nuisance blockages. The feed roller restarts when the rotor returns to its normal speed.
- The “NOSTRESS” system is not applicable to the rental version of the machine.

The "NOSTRESS" system on the Spearhead XY150 wood chipper comes with 3 pre-set positions.

MODE	ENGINE SPEED	MATERIAL DIAMETER
<b>ECO (low speed)</b>	1950 rpm	1 – 7 cm
<b>STANDARD (medium speed)</b>	2150 rpm	8 – 11 cm
<b>MAX (high speed)</b>	2250 rpm	12 – 15 cm

# SPEARHEAD XY 150

## NOSTRESS Screen Controls



	<p><b>Main Page</b></p> <p><b>F1:</b> Select the Nostress level (ECO, STD, MAX).  <b>F2:</b> Stop the feed roller rotating  <b>F4:</b> Maintenance page.          ◀: Access to main menu</p>	<ul style="list-style-type: none"> <li>The Nostress level selected is displayed in green.</li> <li>The rotor's instant rotation speed is displayed in the box in the centre of the page.</li> </ul>
	<p><b>Maintenance Page</b></p> <p><b>F1:</b> Go back to previous page  <b>F4:</b> Cancel maintenance (hold pressed for 5 sec)  <b>OK:</b> Confirm maintenance (hold pressed for 5 sec)</p>	<ul style="list-style-type: none"> <li>Page providing information of the machine's operating time and the time remaining before the next maintenance.</li> </ul>
	<p><b>General Menu</b></p> <ul style="list-style-type: none"> <li>Page providing access to the pages reserved for the installer, so that necessary adjustments and program modifications can be made.</li> </ul>	

### NOTICE



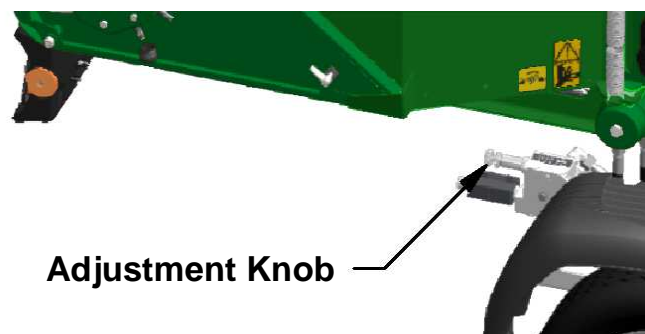
The different error messages which present the rotor from rotating may be seen in Chap.11-2 "NOSTRESS screen error messages".



# SPEARHEAD XY 150

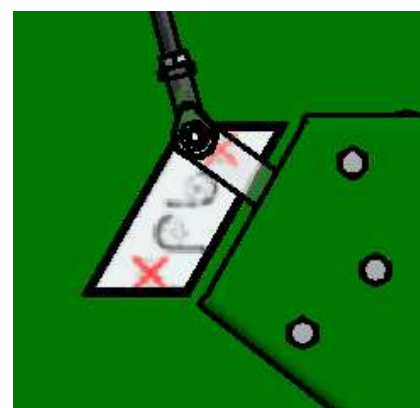
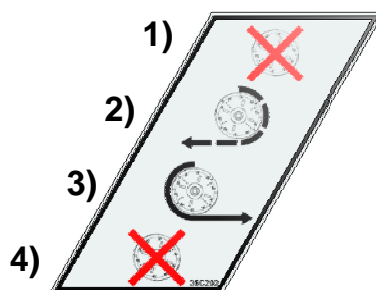
## Setting The Feed Roller And Belt Rotation Speed

- The feed roller rotation and feed belt speed is adjusted by turning the knob in one direction or the other to slow it down or speed it up. The roller rotation speed determines the size of the chips.



## Control Bar

1. Safety stop
2. Reverse
3. Forward
4. Stopping
5. Emergency stop



## Reset Procedure After Emergency Stop

- Put the emergency stop back into its initial position by pulling the button outwards.
- Keep pressing the “OK” button of Nostress for 3 seconds.
- Put the control bar in the position "Stopping" 4), then to forward.

### NOTICE



The control bar is a safety element, therefore it is strictly forbidden to make any modifications as specified in the “Safety Mechanisms In The Design” section.

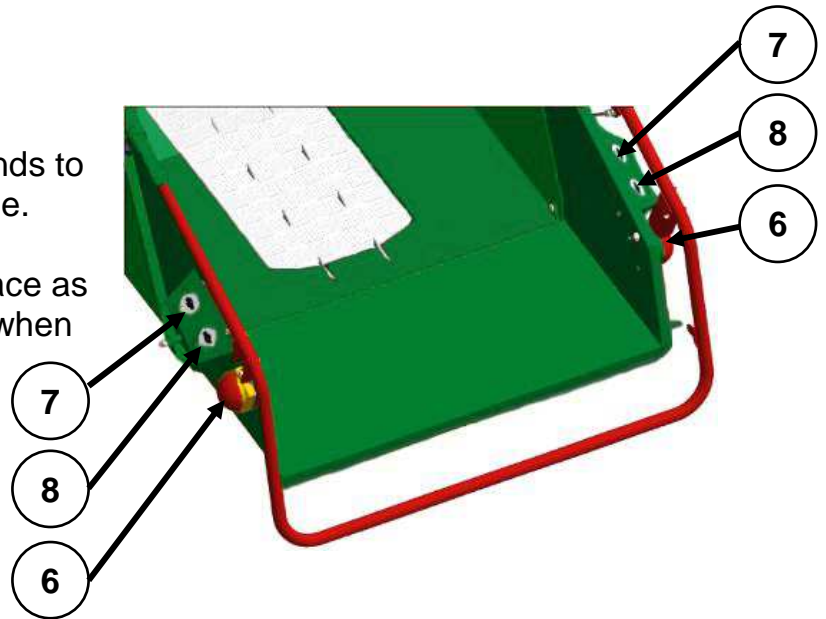
# SPEARHEAD XY 150

## Sensitive Control (Optional)

### 6. Emergency Stop

7. **Forward** - hold down for 4 seconds to activate continuous forward mode. Press again to stop rotation.

8. **Reverse** - rotation only takes place as long as the button is held down when in reverse.

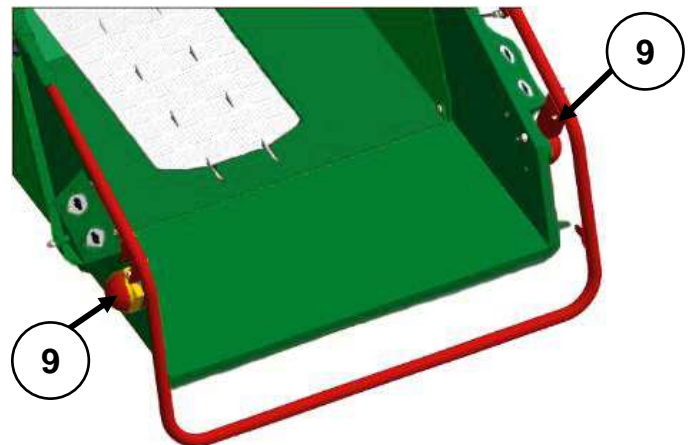


During continuous forwards operation, the direction of rotation of the roller can be temporarily reversed by activating the reverse function. This will resume forwards operation as soon as the button is released.

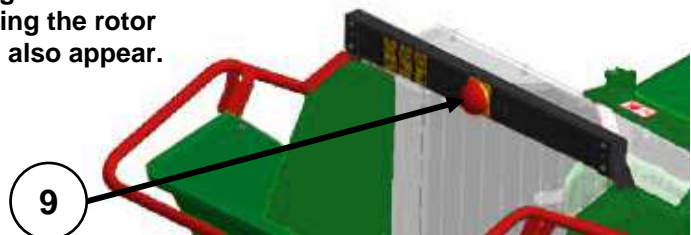
## Emergency Stop Resetting

### Reset Procedure After Emergency Stop

- Put the emergency stop back (9) into its initial position by pulling the button out.
- Keep pressing the “OK” (10) button of Nostress for 3 seconds.
- Resume forwards operation



Once the machine is started the Stop instruction will change from red to green. An arrow showing the rotor rotating will also appear.



# SPEARHEAD XY 150

## STARTING THE WOOD CHIPPER

### Starting The Engine

#### Follow The Instructions Below To Start The Equipment

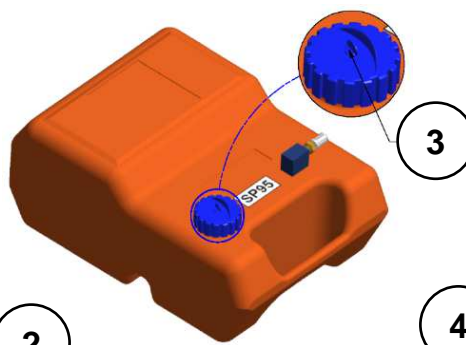
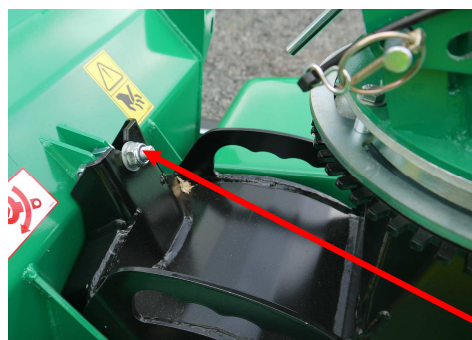
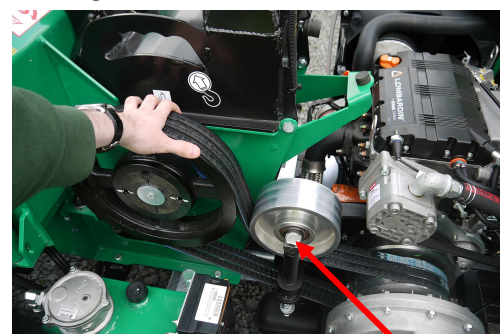
- Make sure that there is no-one inside the machine's "Work Zone" of the machine. See the "Safety/Work Area" section of this manual.
- Make sure that each operator working on the machine is qualified, i.e. that they have received prior training.

#### Check Visually

- That bolts are tight (re-tighten if necessary).
- The discharge chute is directed safely and is locked.
- That the feed hopper is empty.
- That the control bar is in the "Safety stop" position.
- The condition and position of guards.
- That retaining pins are present.
- Hydraulic hoses are in good condition and secure.
- That oil levels are sufficient.
- That the fuel level is sufficient.



- Raise the engine cover and turn the rotor by hand by moving the belt, to ensure there is no impediment to movement (1). Close and lock the engine cover (2).
- Loosen the fuel tank's filling cap air vent (3) to avoid any pressure loss due to the reduction in fuel volume. (Petrol version only).
- Turn the engine's ignition key, wait for the NOSTRESS screen to switch on and the preheat light to go out.
- Select **ECO**, **STANDARD** or **MAX** mode on the NOSTRESS control screen.
- Start the engine, increase speed gradually, using the acceleration control, until the desired speed is reached (4).



# SPEARHEAD XY 150

## NOTICE



When the engine starts, the hydraulic coupler automatically starts to rotate.

## WARNING

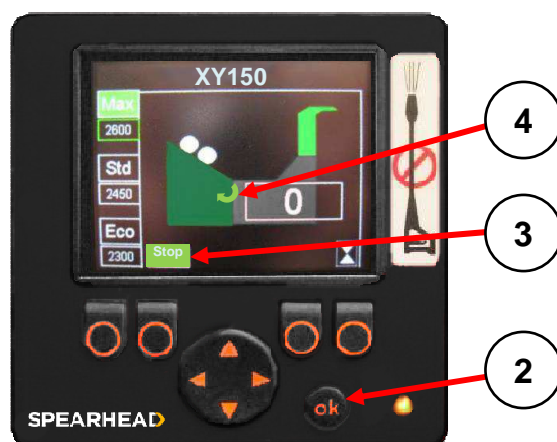


Start-up instructions must be followed in the order in which they appear.

## Starting The Rotor Of The Wood Chipper

### Once The Engine Is Up And Running

- Press the “Ok” (2) button on the NOSTRESS display for 3 seconds to engage the drive to the rotor.
- The “Stop” display on the screen will change from **Red** to **Green** (3) and an arrow will appear showing the rotor is in motion (4).



## WARNING



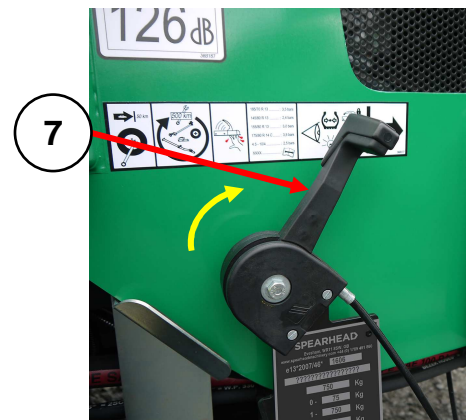
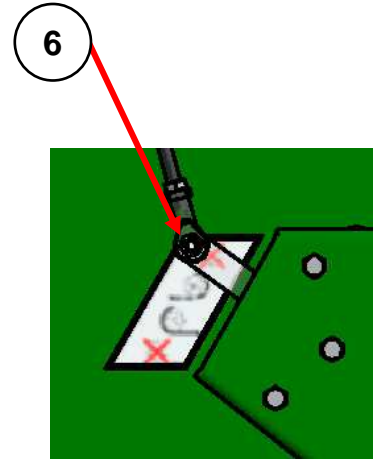
Opening the protectors and lifting the feed hopper are prohibited when the machine is running.

# SPEARHEAD XY 150

## STOPPING THE WOOD CHIPPER

Follow The Instructions Below To Shut Down The Equipment

5. Allow actions in progress to complete.
6. Put the control bar in the "Safety Stop" position.
7. Use the acceleration control to reduce the engine speed to minimum.
8. Switch off the engine and remove the key.



### WARNING



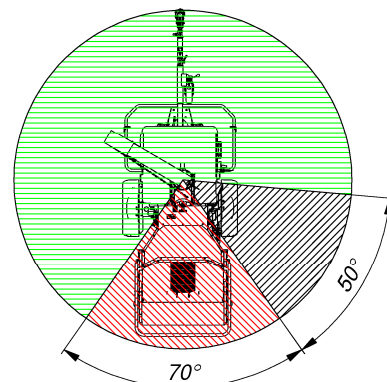
Shutdown instructions must be carried out in the order in which they appear.

# SPEARHEAD XY 150

## MAINTENANCE

### Safety Instructions

- Make sure that there is no-one inside the machine's "Working Zone".
- All maintenance operations may only be carried out by qualified personnel who have received prior training.
- It is essential that maintenance and servicing work is done only while the machine is disabled, see "Locking / Unlocking".



**DANGER**



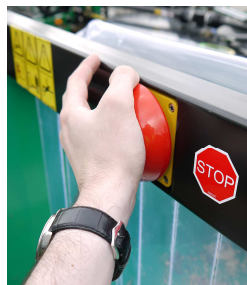
Failure to follow safety instructions may have serious consequences for personnel in charge of maintaining the installation.

### Locking / Unlocking The Machine

The machine is considered to be disabled when maintenance operations may be carried out safely with no risk of personal injury.

#### Locking

- Press the emergency stop button (1).
- Switch off the engine and remove the key.
- Disconnect the battery (2), negative first.
- Maintenance operations may now be carried out by qualified, trained personnel.



1

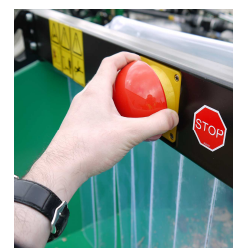


2

#### Unlocking

Make sure that there is no-one inside the machine's working zone.

- Connect the battery (2).
- Unlock all emergency stop buttons (3), by pulling it out.
- Follow the instructions in "Starting up".
- The machine is ready for use.



3

**NOTICE**



The machine's disabling and re-enabling must be carried out in the order, in which they appear.

# SPEARHEAD XY 150

## Lubricants

Component	Capacity	Recommendations	Specifications/Standards
Hydraulic Tank	5 litres	Hydraulic oil. Viscosity - 46	ISO 6743/4 – DIN 51524
Diesel Engine	See engine manual		
Hydraulic Coupler	See hydraulic coupler notice		
Bearings	Multi-purpose use grease		

## Routine Maintenance Programme

Frequency	Operations	Observations To Be Made/Section To Read
Every 8 Hours	Check the hydraulic hoses.	Hydraulic Hose Maintenance
	Check the condition of the blades.	Sharpening The Blades
	Check the condition of the flails.	Changing The Flails
	Grease the bearings.	Greasing
After 50 Hours	Check the drive belt tension.	Belt Maintenance
	Check the hydraulic tank	Hydraulic Tank Maintenance
After 100 Hours	Check the oil level in the hydraulic coupler.	Hydraulic Coupler Maintenance
Every 100 Hours	Check the battery.	Battery Maintenance
Every 200 Hours	Check the drive belt tension.	Belt Maintenance
Every 500 Hours	Check the hydraulic tank.	Hydraulic Tank Maintenance
Every 4000 Hours	Check the hydraulic coupler.	Hydraulic Coupler Maintenance

### Internal Combustion Engine - 22 hp (Honda GX 690)



After 20 Hours	Check the diesel engine	Diesel Engine Maintenance
Every 100 hours/6 months		

### Diesel Combustion Engine – 27/35 hp (Lombardini LDW 1003/1404)



Every 25 hours	Check the diesel engine	Diesel Engine Maintenance
After 50 hours		
Every 250 hours/1 year		
Every 500 hours/2 years		

### Internal Combustion Engine – 34/38 hp (Kohler CH 940/980)



Every 25 hours	Check the diesel engine	Diesel Engine Maintenance
Every 100 hours		
Every 150 hours		
Every 200 hours		
Every 300 hours		
Every 500 hours/1 year		

# SPEARHEAD XY 150

## CAUTION



Frequencies are given for normal operating conditions and temperate climates. For extreme temperatures or difficult conditions, intensive use, very dusty atmosphere e.t.c., please contact Spearhead Machinery.

## MAINTENANCE

- The service life of your equipment depends on how it is maintained.

## NOTICE



All maintenance operations must be carried out with the machine disabled and by trained, qualified personnel.

## Hydraulic Hose Maintenance

- The hydraulic hoses are subject to extreme conditions of use and must therefore be kept in good condition. Examine the hoses frequently to identify any damage or leaks.
- Re-tighten or change hydraulic hoses if necessary using hoses with the same technical characteristics. The service life of your equipment depends on how it is maintained.



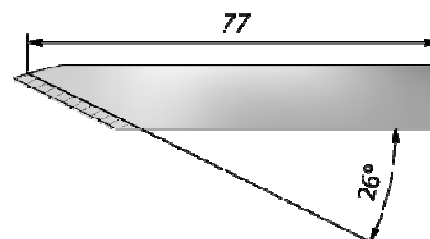
## Sharpening The Blades

## WARNING



Sharpening the blades is a delicate and hazardous operation and should only be carried out by trained, qualified staff, wearing protective gloves.

- Disable the machine – See "Locking / Unlocking" section.
- Open the rotor housing.
- Turn the rotor manually and lock it, using the rotor safety device.
- Remove the first blade.
- Sharpen the blade with a suitable tool.





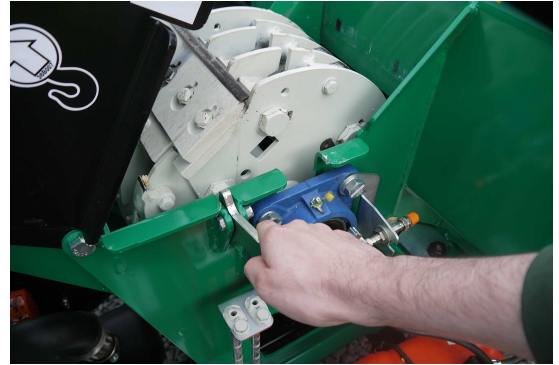
# SPEARHEAD XY 150

## CAUTION



Maintain the original sharpening angle of 26°. Check the blade length after sharpening. If it is less than the minimum of 77 mm, the pair of blades must be replaced. After sharpening, the blade should be perfectly straight. For more information, please contact Spearhead.

- Re-fit the blade on the rotor with the locking washers. Fixing screw tightening torque = 31 Nm (use lubrication).
- Unlock the rotor to access the second blade and repeat the blade removal, sharpening, checking and re-fitting operations.
- Close the rotor housing.
- The two blades must be sharpened identically to maintain the balance of the rotor.



## CAUTION



The two blades must be sharpened identically to maintain the balance of the rotor.

## Changing The Flails

## WARNING



Changing the flails is a delicate and hazardous operation and should only be carried out by trained, authorised staff, wearing protective gloves.


- Disable the machine – See "Locking / Unlocking" section.
- Open the rotor housing.
- Turn the rotor manually and lock it, using the rotor safety device.
- Remove the locking pin from the first row of flails.
- Replace all the flails in the row.
- Re-fit the flail locking pin. Fixing screw tightening torque = 70 Nm (use lubrication).
- Check that the flails can rotate freely around their pin.
- Unlock the rotor to access the second row of flails and repeat the flail removal, change, re-fitting and checking operations.
- Close the rotor housing.



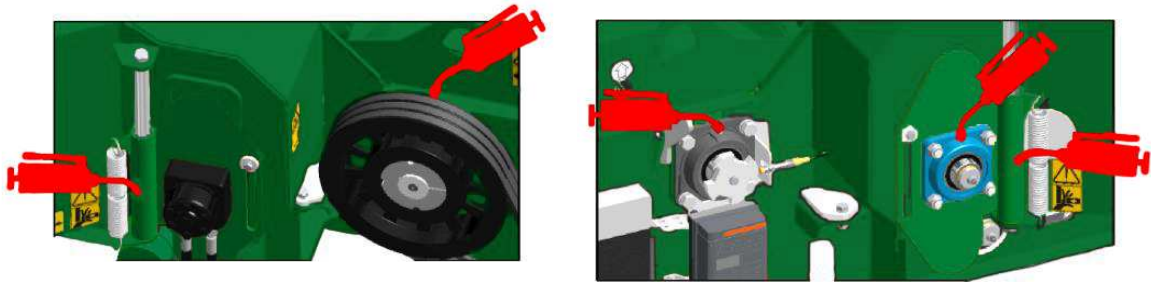
Flail Locking Pin

# SPEARHEAD XY 150

## Greasing

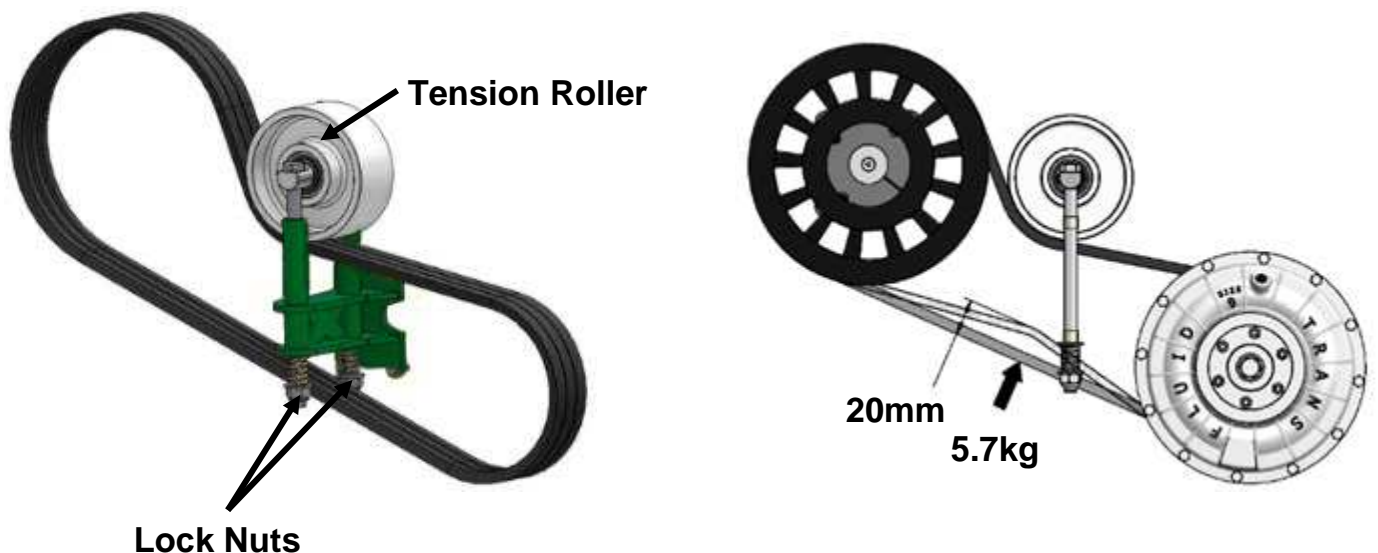
- The bearings and joints must be lubricated using standard multi-purpose grease.
- All greasing points are identified by this symbol: 

## Greasing Locations



## Belt Maintenance

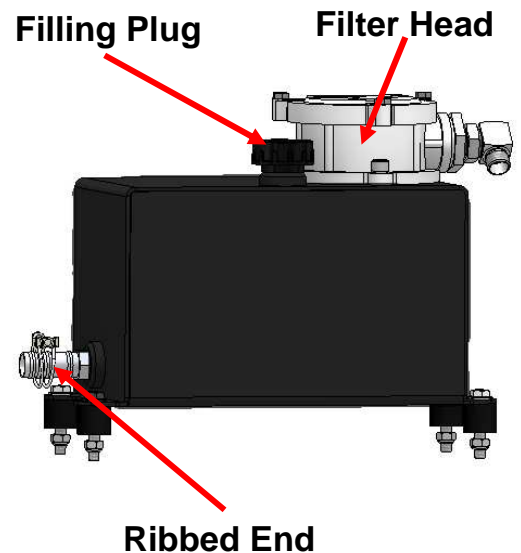
- To achieve optimum reliability of performance from your machine, the belts must be correctly tensioned. Insufficient tension will cause a belt to slip and excess tension will reduce its life and put additional stress on the bearings.
- Apply a weight of **5.7 kg** perpendicularly on the belt and measure the deflection; it should be **20 mm**. If this is not the case, adjust the belt tension via the tension roller by tightening or loosening the locknuts.



# SPEARHEAD XY 150

## Hydraulic Tank Maintenance

- Disconnect the suction hose from the ribbed end.
- Empty the tank completely (recover drained oil as required by current regulations).
- Remove the filter head.
- Clean the walls, if necessary.
- Re-connect the suction hose to the ribbed end.
- Change the oil filter.
- Re-fit the filter head.
- Fill the tank with the recommended oil, see "Lubricants" section.
- Validate the maintenance on the Nostress screen see "NOSTRESS screen controls" section.



## Hydraulic Coupler Maintenance

- Refer to the documentation supplied, see "Hydraulic Couplers" section.

## Battery Maintenance

- **Check The Level**
- Remove the filling plugs
- All battery elements must be covered with water (plus one or two centimetres extra). If this is not the case, add demineralised or distilled water
- **Check Lugs**
- Using a wire brush, remove accumulated sulphate deposits from around the lugs and grease them and their plastic protectors.
- In cold weather, it is important to keep the battery fully charged.

### WARNING



Since the electrolyte is acid, it is essential that protective gloves are worn, when carrying out battery maintenance. In the event of accidental contact with the skin, rinse copiously with clean water.

## Diesel Engine Maintenance

### NOTICE



Read the usage and maintenance manual provided with the diesel engine carefully before beginning installation; ask our after-sales department for this manual, if you do not have one.

# SPEARHEAD XY 150

## TROUBLESHOOTING

INCIDENTS	PROBABLE CAUSES	SOLUTIONS
<b>DIESEL ENGINE WILL NOT START</b>	<ul style="list-style-type: none"> <li>- The fuel tank is empty.</li> <li>- The cover sensor is defective.</li> <li>- The battery is discharged.</li> <li>- The ignition switch fuse has blown.</li> </ul>	<ul style="list-style-type: none"> <li>- Fill the fuel tank.</li> <li>- Check the sensor.</li> <li>- Recharge the battery.</li> <li>- Replace the blown fuse with one with the same characteristics.</li> </ul>
<b>FEED ROLLER DOES NOT TURN OR ONLY TURNS IN REVERSE</b>	<ul style="list-style-type: none"> <li>- The rotor rotation speed is lower than the "NOSTRESS" power threshold setting shown on the control panel.</li> </ul>	<ul style="list-style-type: none"> <li>- Adjust the engine speed.</li> </ul>
<b>MACHINE WILL NOT RUN</b>	<ul style="list-style-type: none"> <li>- Blown fuse.</li> <li>- Broken wire.</li> </ul>	<ul style="list-style-type: none"> <li>- Change the fuse.</li> <li>- Repair the wire.</li> </ul>
<b>ROTOR DOES NOT TURN</b>	<ul style="list-style-type: none"> <li>- Broken belts.</li> <li>- The rotor is stuck (debris, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>- Replace the belts.</li> <li>- Disable the machine and free the rotor.</li> </ul>
<b>FEED ROLLER DOES NOT TURN</b>	<ul style="list-style-type: none"> <li>- The diesel engine is not running at the correct speed.</li> <li>- An emergency stop button is active.</li> <li>- That the control bar is in the "STOP" position.</li> <li>- The machine is jammed.</li> </ul>	<ul style="list-style-type: none"> <li>- Increase the engine speed.</li> <li>- Unlock the emergency stop buttons.</li> <li>- Push or pull the control bar to start the feed roller turning.</li> <li>- Remove the jam.</li> </ul>
<b>CONTROL CONSOLE NOT WORKING</b>	<ul style="list-style-type: none"> <li>- Blown fuse.</li> <li>- Broken wire.</li> </ul>	<ul style="list-style-type: none"> <li>- Change the fuse.</li> <li>- Repair the wire.</li> </ul>
<b>ABNORMAL ROTOR NOISE</b>	<ul style="list-style-type: none"> <li>- Rotor or counter-blade parts are loose.</li> <li>- The blades no longer cut.</li> <li>- The flails are damaged.</li> </ul>	<ul style="list-style-type: none"> <li>- Stop the machine immediately and check the rotor and counter-blade.</li> <li>- Stop the machine immediately and sharpen the blades.</li> <li>- Stop the machine immediately and change the flails.</li> </ul>
<b>OIL LEAK VIA A HYDRAULIC CONNECTOR</b>	<ul style="list-style-type: none"> <li>- The hydraulic connector is loose.</li> <li>- The hydraulic connector was damaged in an impact.</li> </ul>	<ul style="list-style-type: none"> <li>- Tighten the hydraulic connector.</li> <li>- Replace the hydraulic connector.</li> </ul>
<b>EXCESSIVELY HOT OIL</b>	<ul style="list-style-type: none"> <li>- Worn hydraulic pump.</li> <li>- Crushed or blocked hydraulic hoses.</li> </ul>	<ul style="list-style-type: none"> <li>- Contact the after-sales department.</li> <li>- Check the condition of the hydraulic hoses and replace if necessary.</li> </ul>

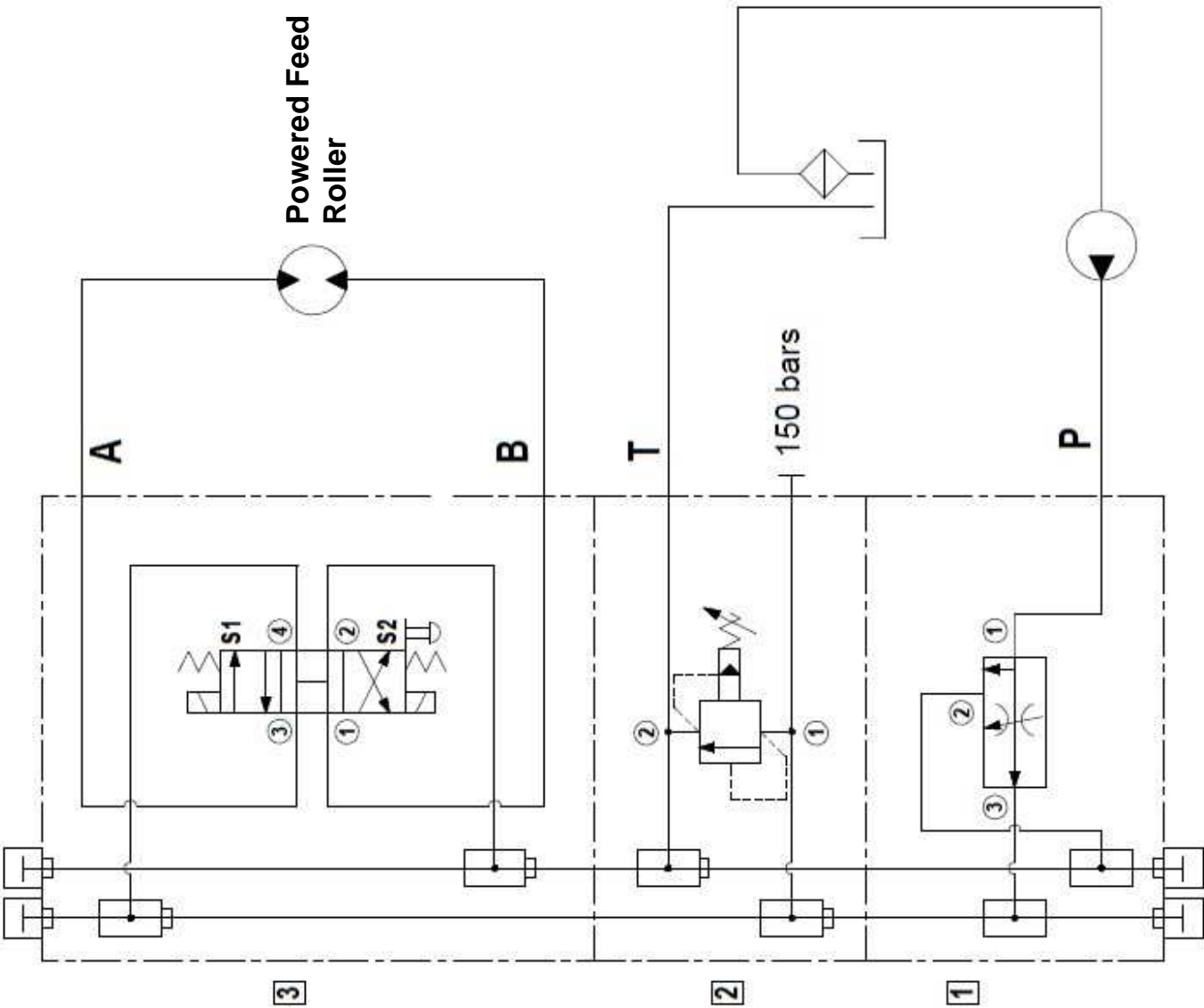




# SPEARHEAD XY 150

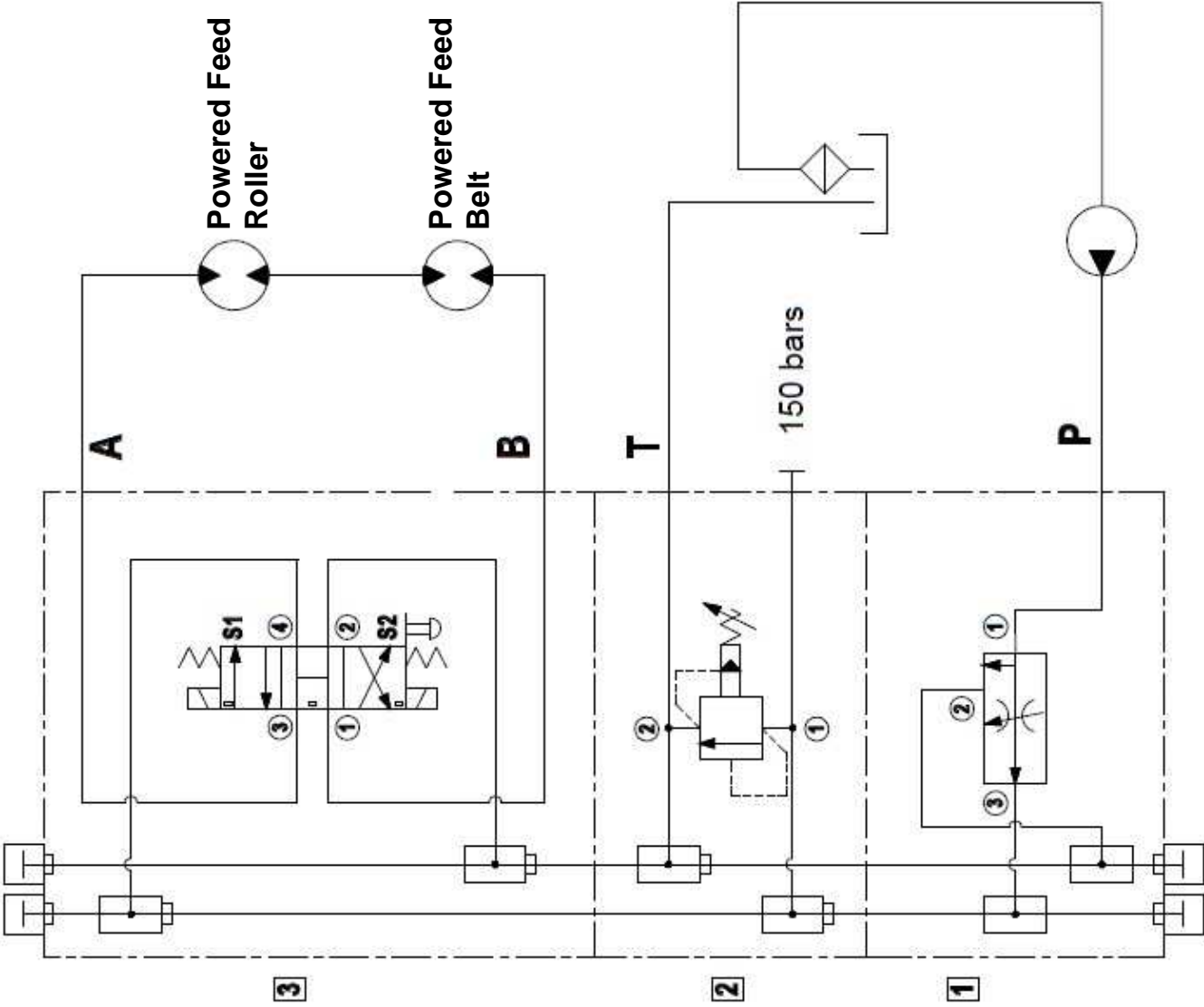
## HYDRAULIC SCHEMATICS

### Standard Hydraulic Diagram



# SPEARHEAD XY 150

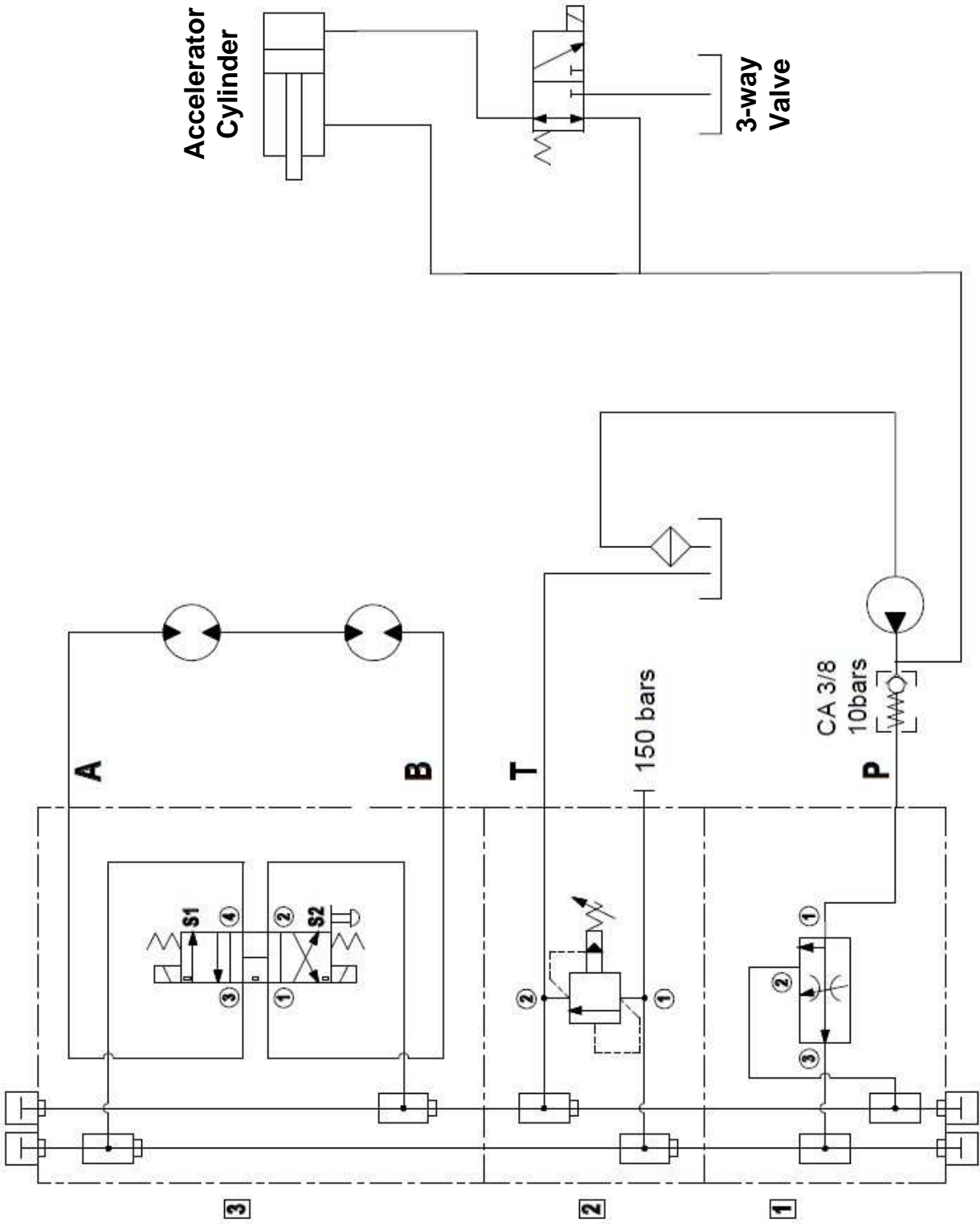
Standard Hydraulic With With Powered Feed Belt Diagram (Option)





# SPEARHEAD XY 150

## Automatic Accelerator Diagram



# SPEARHEAD XY 150

## HYDRAULIC COUPLERS (Honda Engine Not Applicable)

### 2 - FILLING THE COUPLERS

#### SERIE KR ... - KSD - EK

Transfluid hydraulic couplers are **delivered without oil**. To fill them correctly, follow the procedure below:

- Position the coupler horizontally (FIG. 6) and mark an X (maximum level) vertically, so that the filler cap (ref. 13) is inclined as shown in the drawing.
- Fill with oil to overflowing. Agitate the coupler around its axis to remove any air bubbles or, if possible, also open the corresponding plug on the other rotor. The quantity of oil to use is shown in TAB D1.
- Screw in the plug (or the two plugs) to the prescribed torque (TAB E) and ensure that there are no leaks, otherwise apply sealing compound to the threads.
- The filling marks X -1 -2 -3 - 4 should be chosen by the operator to achieve the best performance in terms of starting and stable operation. With **maximum filling X**, a minimum slippage and maximum torque situation is obtained, for which the peak/nominal torque ratio is as high as possible (usually between 1.8 and 2.0).  
By reducing the quantity of oil in the coupler (fillings 1-2-3-4), the reverse effect is obtained.
- Major slippage causes the oil in the coupler's working circuit to overheat and reduces output.
- For normal usage conditions, use only **ISO HM 32** oils (or **SAE 10W**) as shown in TAB. D.  
For low ambient temperatures (close to 0°C) the use of ISO FD 10 (or SAE 5W) oil is recommended.  
For temperatures below 10°C, please contact our technical department.
- To fit a coupler with a vertical axis, introduce the quantity of oil shown in TAB. D1.

#### SERIES CKR.../ CCKR... -CKSD.../ CCKSD

The main purpose of hydraulic couplers with retarding chambers (series CK) is to reduce the starting torque / nominal torque ratio to values close to 1.5. This aspect is amplified to achieve 1.2 by increasing the size of the retarding chamber (series CCK).

- Torque limiting in the starting phase may be obtained by reducing the quantity of oil in the work circuit (fillings 2-3-4) without significantly increasing slippage during stable operation. Actually, when at a standstill, the retarding chamber contains that part of the filling oil which, during starting, moves into the work circuit. During stable operation, all the oil is the work circuit and torque is transmitted with minimum slippage.
- Oil moves from the retarding chamber to the work circuit through **calibrated orifices** (FIG 7) under the effect of centrifugal force. From size, the diameter of these orifices may be modified, with the coupler fitted, simply by replacing the valve, remembering to replace the copper seal (ref. 58). Tighten to the torque indicated in table E and check that there is no leakage.  
**This technical solution makes the work simple and easily achievable very quickly and (what is more important), without dismantling the hydraulic coupler.**
- For all starting / nominal torque ratios, Transfluid can indicate the exact quantity of oil required. Hydraulic couplers with a **retarding chamber** are usually supplied with **filling 2** (TAB. D2), while those with a **double retarding chamber** are supplied with **filling 3** (TAB. D3). For a coupler supplied without oil, proceed as indicated in paragraphs 2.1 - 2.2 - 2.3 - 2.6.
- For couplers fitted with a vertical shaft, the retarding chamber must be positioned at the bottom. Oil quantities are as shown in Tabs. D2 and D3.

TAB. D

RECOMMENDED OIL: ISO CLASSIFICATION <b>HM 32</b> (SAE 10W)					
Agip	OSO 32	Chevron	RYKON OILS AW-32	Mobil	DTE 24
Aral	VITAM GF 32	Elf	ELFOLNA 32	Shell	TELLUS OIL 32
BP	ENERGOL HLP 32	Esso	NUTO H 32	Texaco	RANDO OIL HD 32
Castrol	HYPSPIN AWS 32	IP	HYDRUS OIL 32	Total	AZOLLA ZS 32

TAB. D1

K...	OIL QUANTITIES (l)				
	X	1	2	3	4
6	0.505	0.480	0.455	0.425	0.390
7	0.920	0.860	0.800	0.730	0.650
8	1.510	1.405	1.295	1.190	1.080
9	1.950	1.820	1.690	1.550	1.400
11	2.750	2.550	2.350	2.100	1.850
12	4.100	3.875	3.575	3.250	2.900
13	5.200	4.850	4.450	4.050	3.600
15	7.650	7.150	6.600	6.000	5.400
17	11.70	10.90	10.00	9.100	8.200
19	14.20	13.30	12.30	11.20	10.00
21	19.00	17.80	16.40	15.00	13.50
24	28.40	26.50	24.60	22.60	20.50
27	42.00	39.00	36.00	33.50	31.50
29	55.00	51.00	47.00	44.00	41.50
34	82.50	76.60	70.60	66.20	62.50
46	189	170	158	148	135

TAB. D2

CK...	OIL QUANTITIES (l)		
	2	3	4
11	3.350	3.050	2.750
12	4.800	4.200	3.600
13	5.800	5.200	4.700
15	8.600	7.700	6.400
17	13.60	12.80	11.70
19	16.50	15.20	14.00
21	23.00	21.30	19.30
24	31.20	28.60	26.00
27	50.00	46.50	43.00
29	63.00	59.00	54.00
34	92.50	88.50	83.50

TAB. D3

CCK...	OIL QUANTITIES (l)	
	3	4
15	9.30	8.00
17	16.36	14.86
19	18.76	16.86
21	27.30	24.30
24	35.43	31.63
27	59.35	55.15
29	70.60	65.20
34	96.70	86.40
46	215	200

ABB. 6

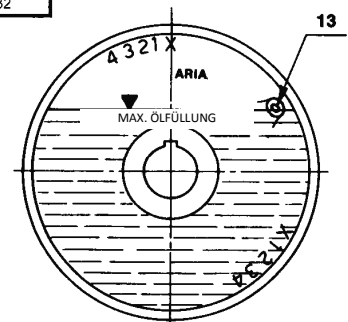
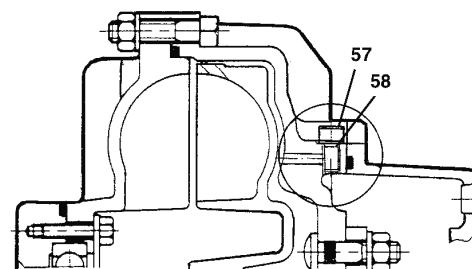


FIG. 7



TAB. E

DIM.	13 - 13a		D. nom.
	N. 7018..	Couple (Nm)	
6	AB	12	1/8"
7-8-9	BB	23	1/4"
11-12			
13-15	CB	29	3/8"
17-19			
21-24			
27-29	DB	44	1/2"
34			
46	EB	69	1"

DIM.	VALVE pos. 57	
	Dia	couple (Nm)
15	M8	7
17-19		
21-24	M12	20
27-29		
34		
46	M16	45

# SPEARHEAD XY 150

## HYDRAULIC COUPLERS

**TRANSEFLUID**  
trasmissioni industriali

### INSTALLATION AND MAINTENANCE

#### 3 – OPERATION AND MAINTENANCE

3.1 The procedures for operating the coupler are carried out by taking control of balancing and temperature. All seals on the coupler are made of Viton and, in order not to damage them, the temperature should not exceed 90°C.

As highlighted in table F, in which the causes and corresponding remedies are shown, a high temperature may have the following causes

- insufficient filling with oil
- absorbed power greater than predicted
- high ambient temperature
- high number of start-ups within a short time
- starting time too long
- too many consecutive starts
- lack of ventilation due to the protective housing being too enclosing.

**Transfluid can supply all operating data on request.**

3.2 Check the oil level after the first 20 days of operation (this must be done when the oil is cold), check also the tightness of securing screws, the motor and the machine being driven.

3.3 Repeat the above checks approximately every six months - for series KRG couplers and derivatives, check the play k (TAB. C) of the elastic coupler. If the torsion play is excessive (almost 2°), change the rubber parts.

3.4 The coupler is supplied with a fusible plug set to 140°C (upon request can also be supplied set to 120°C or 198°C, depending on the application) as shown in FIG. 14.

If the fusible plug melts frequently, carry out the checks described in para. 3.1 a) and f) and also the corresponding lines in table F.

3.5 If a percussion plug or electronic speed control is fitted, check that the distances indicated in FIGs. 9 and 11 are consistent with those set during fitting.

3.6 It is recommended that the oil is replaced after every 4,000 hours of operation of the coupler.

#### 4 – DISASSEMBLY

4.1 Remove the fixing screws (ref. 25 on KR models, ref. 26 on KSD models, or the radial screw (ref. 62 for 6KR.../KSD).

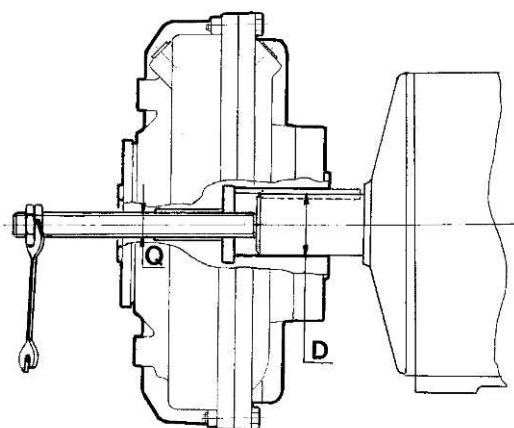
4.2 Screw the threaded rod into the tapped hole on the end of the hydraulic coupler and proceed as shown in FIG. 8. That threaded rod (dimension Q shown in TAB G) will space the coupler from the motor shaft.

4.3 For couplers assembled using a tapered sleeve, a slight movement is sufficient to remove the coupler from its seat. If the tapered sleeve must also be removed, a screwdriver may be used to push into the keyway. **Do not force the tapered part or you may damage the contact surfaces and so compromise the correct re-assembly of the parts.**

TAB. G

K./CK..	D	Q	
		sans manchon	avec manchon
7 - 8	19	M12	M12
	24		
	28		
	38		
9-11-12	38	M14	M20
	42	M16	
	48	M20	
13 - 15	48	M27	M27
	55		
	60		
	65		
	65		
	65		
17 - 19	75	-	-
	80		
	80		
	80		
21 - 24	90	M36	-
	100		
	100		
27 - 29	100	M45	-
	120		
	135		
34	150	-	-
46	180		


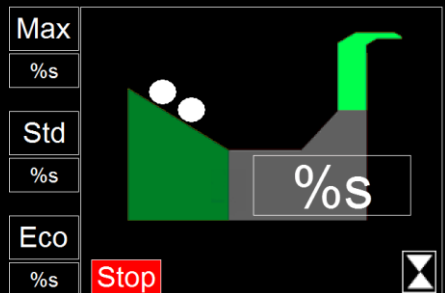
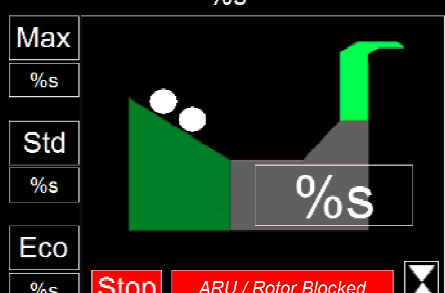

FIG. 8



SYMPTOM	CAUSE	REMEDY
TEMPERATURE TOO HIGH OPERATION OF FUSIBLE PLUG	INSUFFICIENT OIL LEVEL	Check the oil level and top up if necessary
	TOO MANY CONSECUTIVE STARTS	Allow to cool before re-starting, reduce frequency
	ABSORBED POWER HIGHER THAN PREDICTED	Eliminated the causes and/or review the sizing
	HIGH AMBIENT TEMPERATURE	Improve the coupler's ventilation
	DRIVEN MACHINE SEIZED OR OVERLOADED	Eliminate the causes.
	HEAT SOURCE TOO CLOSE	Eliminate the heat source or use a thermal screen.
	PROTECTIVE HOUSING TOO ENCLOSING	Increase the air flow to improve heat exchanges
REDUCED PERFORMANCE	OIL LEVEL	Check the oil level and top up if necessary with the right type of oil
	TYPE OF OIL USED	If necessary, change it (TAB. D, page 4). Check that it meets the recommended oils specification
	AMBIENT TEMPERATURE BELOW 0°C	Use suitable oil (see para. 2.6, page 4).
INSUFFICIENT ROTATION SPEED AND /OR TOO MUCH SLIPPAGE	DEFECTIVE MOTOR	Check the motor settings (if electric motor, check the connections).
	STAR-DELTA SWITCHING TIME	If the time is too long, reduce it to 3 sec. max.
	DRIVEN MACHINE SEIZED OR DAMAGED	Eliminate the causes.
NOISE AND VIBRATION	ALIGNMENT	Check alignment (page 1, para. 1.8).
	DEFECTIVE BEARINGS	Disassemble, check and replace bearings (and corresponding seals)
	DAMAGED COMPONENT ON ELASTIC COUPLING	Replace the damaged parts
WHISTLING	PROTECTIVE HOUSING	Avoid air passage between the housing and machine that are too narrow.

# SPEARHEAD XY 150

## NOSTRESS SCREEN ERROR MESSAGES

DISPLAY	SYMPTOM	CAUSES	REMEDIES
	<p>&gt; The screen's display does not change and the feed roller does not turn.</p>	<p>&gt;The ejection chute is directed towards the feed zone.</p>	<p>&gt;Guide the ejection chute in another direction. &gt;See "Adjusting The Chip Evacuation" section.</p>
<p>Max %s</p> <p>Std %s</p> <p>Eco %s</p> 	<p>&gt;The feed roller does not turn.</p>	<p>&gt;The power takeoff is not at the right speed. &gt;The "STOP" button has been pressed on the control console.</p>	<p>&gt;Increase the power take-off speed. &gt;Hold the "Ok" button for 3 seconds to restart the feed roller.</p>
<p>Max %s</p> <p>Std %s</p> <p>Eco %s</p> 	<p>&gt;The petrol engine will not start.</p>	<p>&gt;The hood sensor is defective or the hood is incorrectly closed. &gt;The petrol engine is not running at the correct speed.</p>	<p>&gt;Check the hood sensor. &gt;Increase the engine speed.</p>
<p>Max %s</p> <p>Std %s</p> <p>Eco %s</p> 	<p>&gt;The rotor does not turn.</p>	<p>&gt;The rotor is stuck (debris e.t.c.)</p>	<p>&gt;Disable the machine and free the rotor.</p>

### Definition

- ARU – Active Rectifier Unit

# SPEARHEAD XY 150

## NOISE EMISSION DECLARATION

This machine was tested by RABAUD S.A.S. on behalf of Spearhead Machinery Limited.

**XY150 - 71805C+71807C - Measurements taken no-load and under load according to standard NF EN 13525 + A1, EN ISO 3744 and ISO 11204 EN**

### COMBINED DECLARED NOISE EMISSION VALUES according to NF EN ISO 4871 standard

- Weighed acoustic power level A, $L_{WA,d}$ , in decibels no load.	<b>118 dB(A)</b>
- Weighed acoustic power level A, $L_{WA,d}$ , in decibels under load.	<b>129 dB(A)</b>
- Weighted emission acoustic pressure level A, $L_{pAd}$ at operator station, in decibels no load.	<b>106 dB(A)</b>
- Weighted emission acoustic pressure level A, $L_{pAd}$ at operator station, in decibels under load.	<b>111 dB(A)</b>
- Weighted emission acoustic pressure level C, $L_{pc}$ at operator station, in decibels no load.	<b>&lt; 130 dB</b>
- Weighted emission acoustic pressure level C, $L_{pc}$ at operator station, in decibels under load.	<b>143 dB</b>

Values determined according to the acoustic test code provided in appendix B of the standard NF EN 13525 + A1 with use of the basic standards NF EN ISO 3744, NF EN ISO 11204 and NF EN ISO 4871.

#### NOTICE

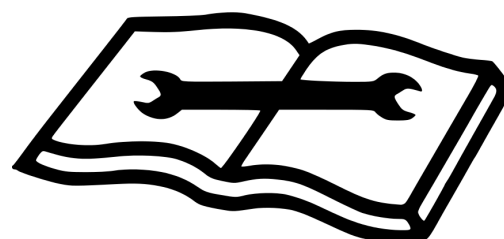


**During use, hearing protection (ear protectors) must be worn.**



#### Related Manuals

- Internal combustion engine manual





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