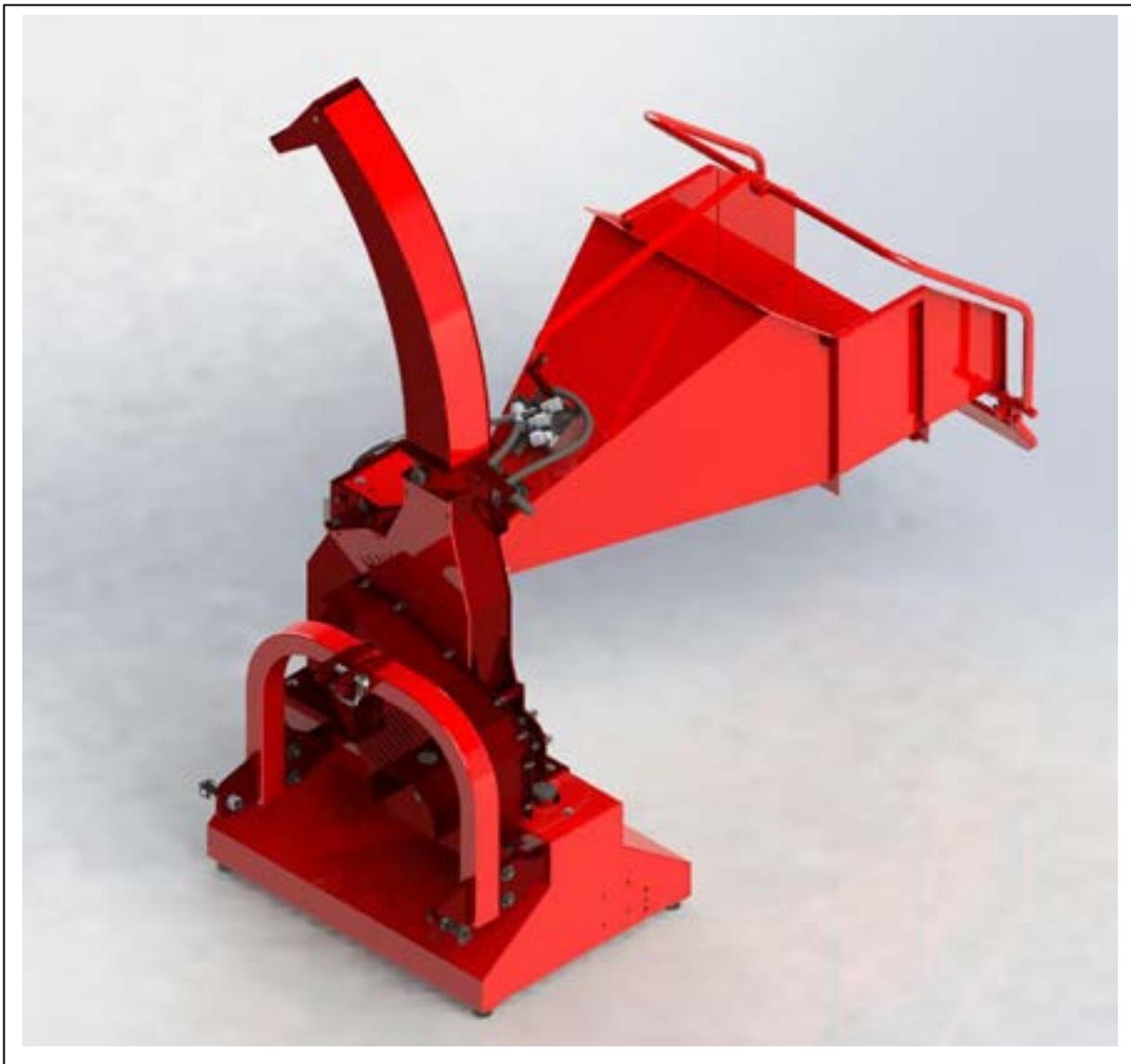




**ORIGINAL USE AND MAINTENANCE INSTRUCTIONS**

## **ARIETE BIO-SHREDDER**



**This manual is an integral part of the machine.**

This manual is provided with the machine and the user should always have a copy with him.

**Aim of the manual**

This manual contains all useful information for a correct and safe use of the machine. Before starting to use this machine, the user should read this manual carefully.

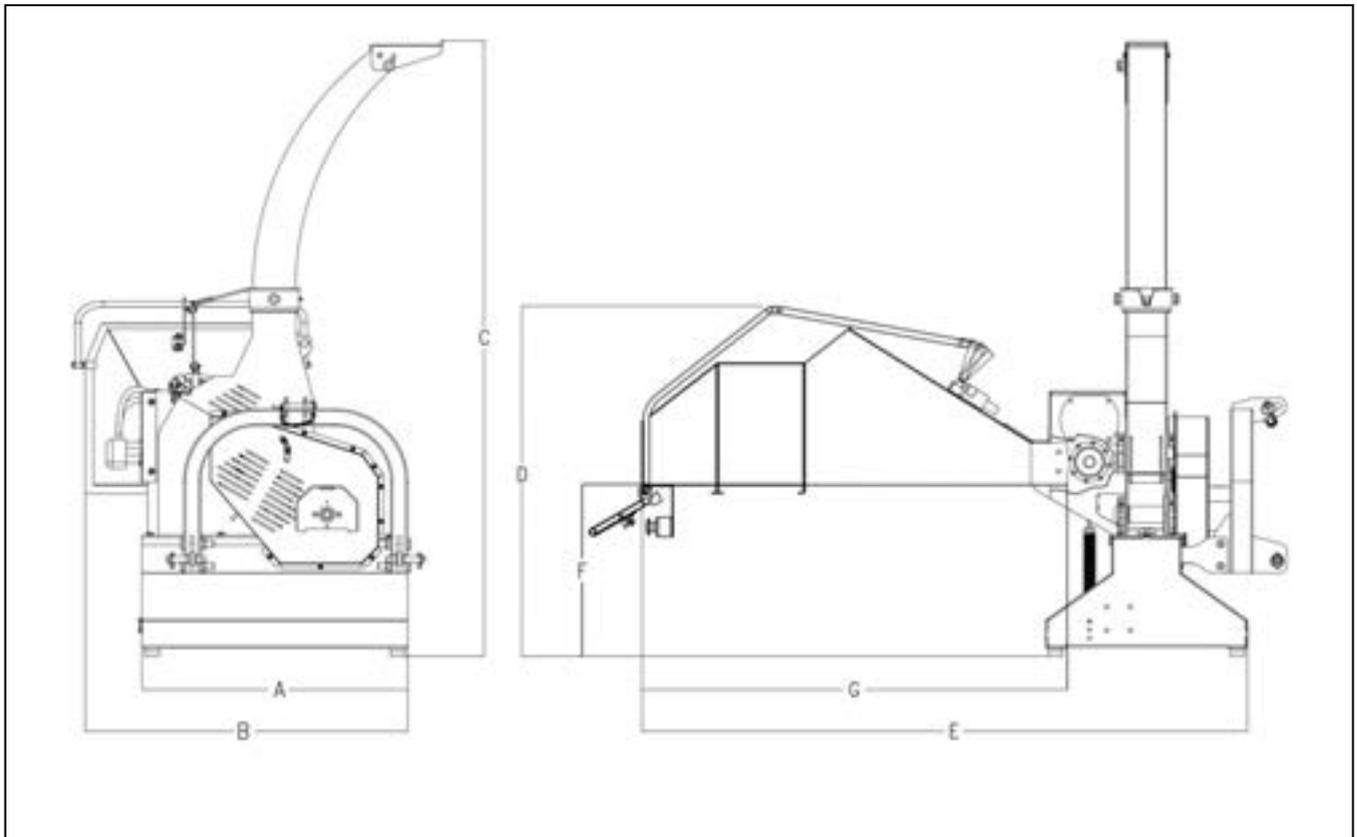
**The user's responsibility**

The user will be considered responsible for accidents and damages to things and people due to non-respect of the instructions contained in this manual. Therefore, the manufacturer assumes no responsibility in the following cases:

- Using the shredder for the wrong purposes.
- Using the shredder for purposes other than the ones specified in this manual.
- Failing to carry out requested maintenance.
- Modifying the machine without the express authorization of the manufacturer.
- Using not original spare parts.



## TECHNICAL CHARACTERISTICS



Model	Version	Hp	Max ø of cut		Knives n°	Power take-off speed rpm	Peripheral speed of the rotor m/s	Weight	
			cm	Inch				Kg	Lbs
ARIETE	STANDARD	25-50	15	6	4	540	44.5	430	948
	NO STRESS	25-50	15	6	4	540	44.5	430	948

Volume of the machine		STANDARD	NO STRESS
A	mm	950	950
B	mm	1155	1155
C	mm	2220	2220
D	mm	1290	1290
E	mm	2165	2165
F	mm	617	617
G	mm	1520	1520

## INSTRUCTIONS FOR USING THE MACHINE

- The machine is designed for shredding plant material, leaves and natural pieces of wood of the dimensions indicated in the specific techniques. Never to introduce the following materials in the shredder: plastics, glass, rocks or metal.
- Before introducing the material in the charging hopper, make sure it does not contain foreign objects.
- The machine stands on the ground with its own base. It is seriously suggested to set the machine only on flat horizontal and not excessively rigid surfaces in order to avoid all the vibrations which might affect the proper functioning of the machine. This machine is designed for operation by properly instructed adults only.
- Never to leave this machine unattended without having removed the key and having checked that the engine is shut off.

## SECURITY

### GENERALITIES

- This manual is an integral part of the machine. In case of loss, please ask DEL MORINO company for a copy.
- Body protections are an integral part of the machine and should be worn while using the shredder.
- Work in the daylight only or at least under appropriate artificial lighting.
- Always wear eye protection goggles, gloves and hearing protection.
- Never wear scarves, jewelry or other accessories that could be caught in the machine.
- **Warning:** Never use this machine in enclosed and unventilated areas because the engine of the tractor emits substances with high concentration of carbon dioxide.
- **Warning:** Use this machine on flat, horizontal and firm grounds.
- Before leaving the machine unattended, make sure the PTO of the tractor is disconnected.
- If you remark any anomalies, such as hisses or strange vibrations, please stop the machine immediately.
- Replace the defective parts exclusively with original spare parts.

### LOCAL RULES

- Make sure that any person using this machine has read the instructions. Do not let children use it.
- Local rules might prevent people under a certain age from using this machine.

### WARNING

- Stopping in front of the charging hopper or in front of the feed chute is forbidden. Danger from materials that might be ejected by the machine at high speed.
- Looking directly in the charging hopper is forbidden.
- Pour travailler il faut toujours se placer à côté de la trémie de chargement.
- While working always stand on the side of the charging hopper.

## SAFETY LABELS

In this section, the safety labels stuck on the machine are reproduced and explained.



1. While working, always wear suitable protective clothes.
2. While working, always wear gloves.
3. While working, always wear hearing protection.
4. While working, always wear eye protection goggles.
5. While working, always wear safety footwear.
6. Lire attentivement le présent manuel.
7. Read this manual carefully.
8. Maximum diameter of cutting: 6 inches.
9. Warning : do not power up the machine without protective clothes.

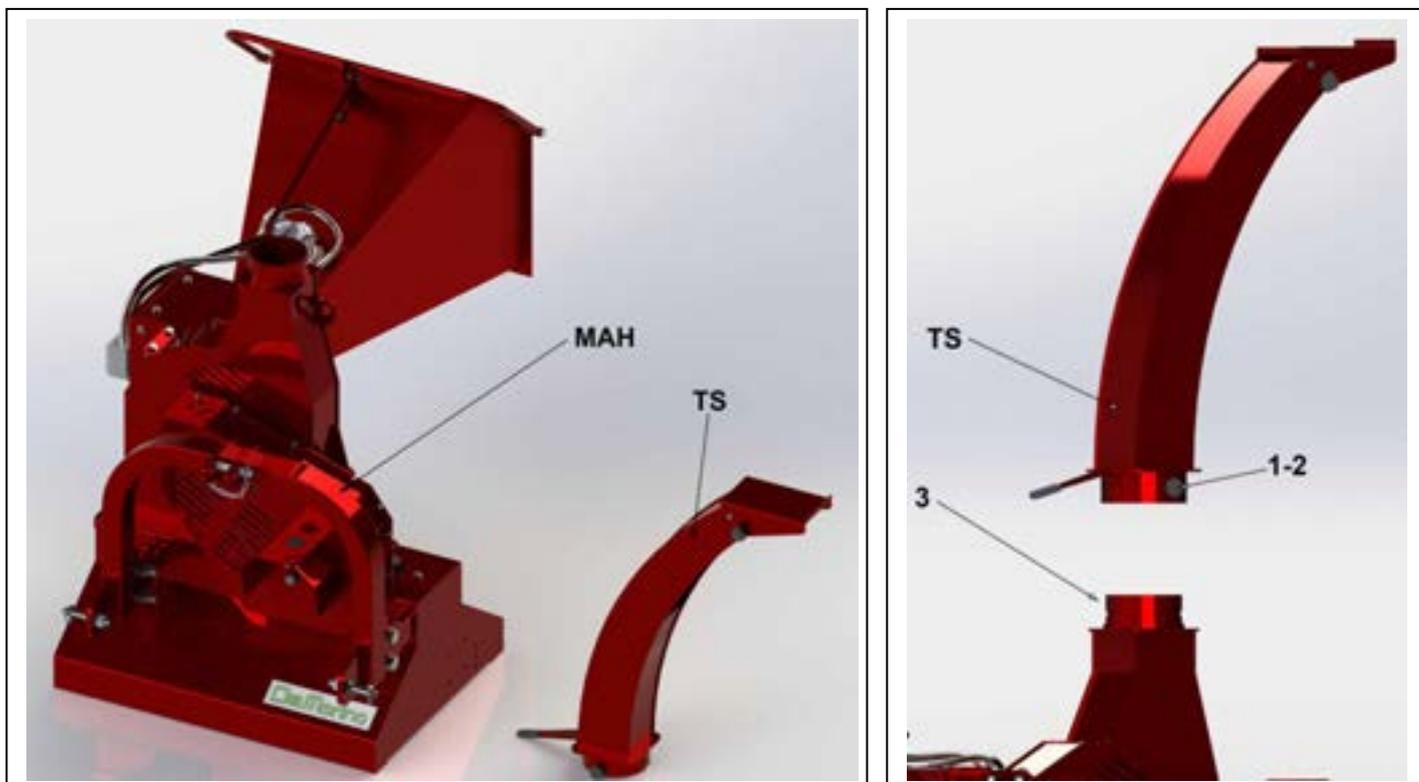
### Safety labels have to be well-readable

1. In case of damages, labels should be replaced.
2. If certain parts of the machine where safety labels are stuck need to be replaced, the labels shall be renewed, as well.

### Supply of new safety labels and instructions for their attachment.

In order to obtain new safety labels together with the instructions for their attachment, please contact the supplier.

## 1. THE EXHAUST PIPE ASSEMBLY

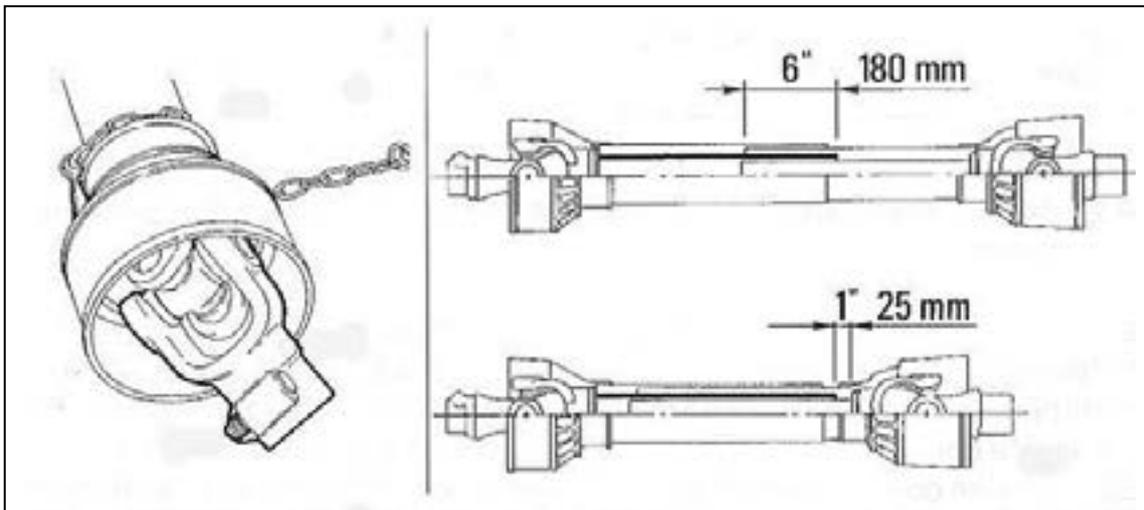


1. Take the following things out of the box: the "MAH" machine, the "TS" exhaust pipe and the instructions manual.
2. Insert the "TS" exhaust pipe in the "3" gasket type union which is situated on the upper part of the machine.
3. Place the exhaust pipe in a vertical position relative to the rotor.
4. Screw the three lobed knobs tight.

## 2. FILLING OF THE TANK.

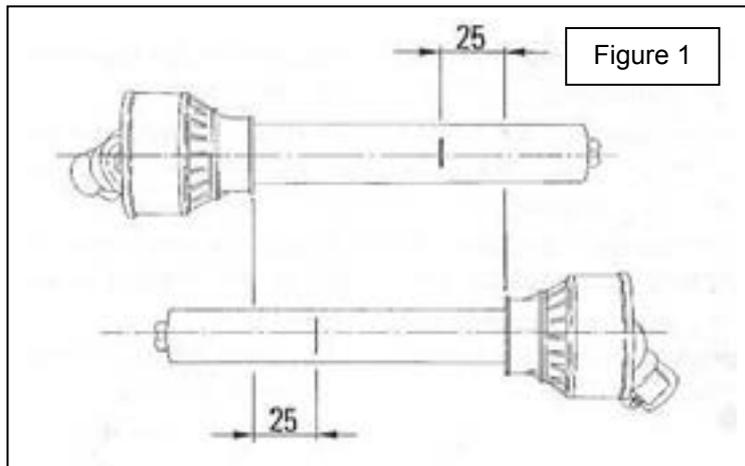
1. In order to fill the tank correctly and in order to know the right quantity and quality of oil to introduce, please see page 13 point 2.

## 1. FOR CHECKING THE LENGTH OF THE PTO SHAFT

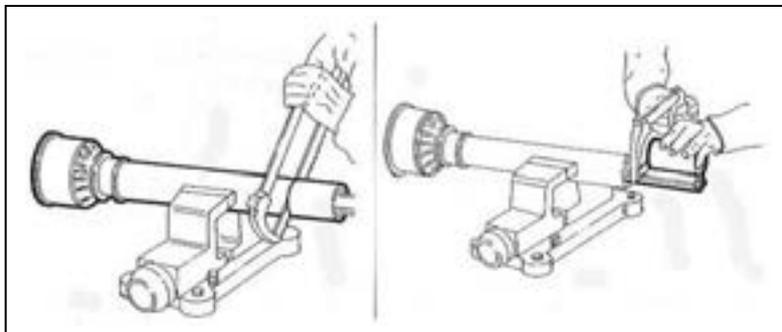


1. After having linked up the ARIETE to the third point, please check it is placed in a horizontal and central position in relation to the tractor using the adjustment devices.
2. Place the PTO shaft between the tractor' PTO and the ARIETE's PTO.
3. Check the length of the PTO shaft.
4. The length of the PTO shaft is correct if in the working position the minimum length of the coupling between the inner tube and the outer tube is not less than 180 mm and if, at the same time, in the condition of minimum extension, the PTO shaft still can make a movement of 25 mm.
5. If the minimum coupling length is less than 180 mm, it means that the PTO shaft is too short and you will need to replace it with a longer one.
6. If in condition of minimum extension the PTO can run less than 25 mm, it is too long and it must be shortened.
7. **WARNING:** shortening a PTO shaft is quite complicated. Always read the instructions contained in the following chapter before starting this delicate procedure not to damage the PTO shaft.

## HOW TO SHORTEN A PTO SHAFT



1. Move the ARIETE as close as possible to the tractor, by using a hydraulic lift.
2. Once in this position, stop the hydraulic lift and switch the engine off.
3. Separate the two parts of the PTO shaft.
4. Insert the "female" PTO shaft (that is to say the larger-diameter tube) in the tractor's PTO.
5. Insert the "male" PTO shaft (that is to say the smaller-diameter tube) in the ARIETE's PTO.
6. Place each part of the PTO shaft parallel to the other. Then, use a permanent marker to highlight the cutting point as shown in the figure "1".



1. Use a bow saw to cut the plastic tube on the marker line that you had already drawn on one of the PTO shaft parts.
2. Align the part of the tube that you have already cut at the bottom of and cut it.
3. Repeat the same operations on the second part of the PTO shaft.
4. Use a file to bevel the extremities of the tubes.
5. Clean and grease the two metallic tubes and insert the first part of the PTO shaft inside the other.
6. Set up the PTO shaft between the tractor and the ARIETE and check its length another time.



## HOW TO USE THE MACHINE

1. **WARNING:** The machine is used to be used with a tractor equipped with a PTO 540 rotations/minute.
2. Hitch the machine with the hydraulic lift of the tractor.
3. Set up the PTO shaft between the tractor's PTO and the machine's PTO. Make sure that the two anti-rotation chain of the PTO shaft are secured respectively to the tractor and to the machine. Furthermore, make sure that the protections at the ends of the PTO shaft are present and functional.
4. Install the machine on solid and horizontal ground. The machine cannot be used in enclosed or inadequately ventilated areas.

### 1. PRELIMINARY CHECKS

1. Check the level of the oil contained in the tank. For a correct procedure, see instructions at page 13, point 2.
2. Make sure that the security bar does not move (see instructions at page 10, paragraph 1)
3. Make sure that there are not foreign objects in the feed hopper.
4. Check the material which has to be shredded and if there are foreign objects (such as rocks, plastics, cloth and metals) remove them.

### 2. HOW TO SWITCH THE TRACTOR'S ENGINE ON.

1. The machine has to be used by a single operator.
2. Switch the tractor's engine on and leaving it idling, engage the PTO.
3. Gradually speed up the engine until the maximum number of revolutions per minute. The machine works properly only if the tractor has a PTO 540 rotations/minute.

#### NOTE :

Let the machine idle for about 5 minutes in order to uniform the temperature of the oil which is circulating in the hydraulic system.

### 3. SHREDDING

1. Activate the feed roll setting the control lever in the position "1".
2. Introduce an extremity of the branch that you want to shred in the feed hopper. As any small lateral branches can jam the machine, cut or bend them.
3. Introduce the branches in the machine by applying a gentle pressure. The machine works through a roller fed fuelling system which let the branches move forward to the knives. Do not hold the branches not to hurt your hands.
4. If the number of turns made by the tractor's engine decreases, it means that the machine stalled. In this case, place the distribution lever in position 2, stop to introduce the material in the hopper and wait for it to be completely discharged. In case the engine's turns go on decreasing, place the distribution lever in position "0" in order to expulse the exceeding material contained in the hopper.
5. SHREDDER WITH A NO STRESS SYSTEM:  
No stress shredders recover motor rpm automatically thanks to the particular "NO STRESS" distributor that sends the hydraulic fluid to the exhaust pipe stopping the roll feeding. Once the nominal speed is recovered the valve automatically closes the exhaust pipe and the material feeding starts again.

### 4. END OF WORK

1. Place the lever in position "2", which is the neutral position.
2. After disconnecting the PTO let the machine idling for some minutes so that all the inside material is ejected.
3. **WARNING :** after having disconnected the PTO, the rotor will roll by inertia for some moments. Wait for the machine to come to a complete halt.

## MAINTENANCE INSTRUCTIONS

All the information concerning both the maintenance operations and their maturity dates are indicated in the “A” form. Failure to respect the deadlines might affect the proper functioning of the machine and may invalidate any warranty.

### “A” FORM AND SCHEDULED MAINTENANCE

	FIRST RUN	AFTER 10 H.	EACH 30 H.	AFTER 50H.	EACH 250 H.	END OF THE SEASON	WORK START	WORK END
<b>MACHINE</b>	Greasing		Greasing			Cleaning Greasing		Cleaning
<b>TANK</b>	Oil level	Oil level	Oil level		Oil change			
<b>OIL FILTER</b>				Replacing	Replacing			
<b>SCREWS</b>		Tightening	Tightening		Tightening			
<b>KNIVES AND BLADES</b>			Damage checking			Checking	Checking	Checking
<b>COUNTER-KNIFE</b>			Damage checking			Checking	Checking	Checking
<b>BELT</b>		Tension checking			Replacing			

**NOTE :**

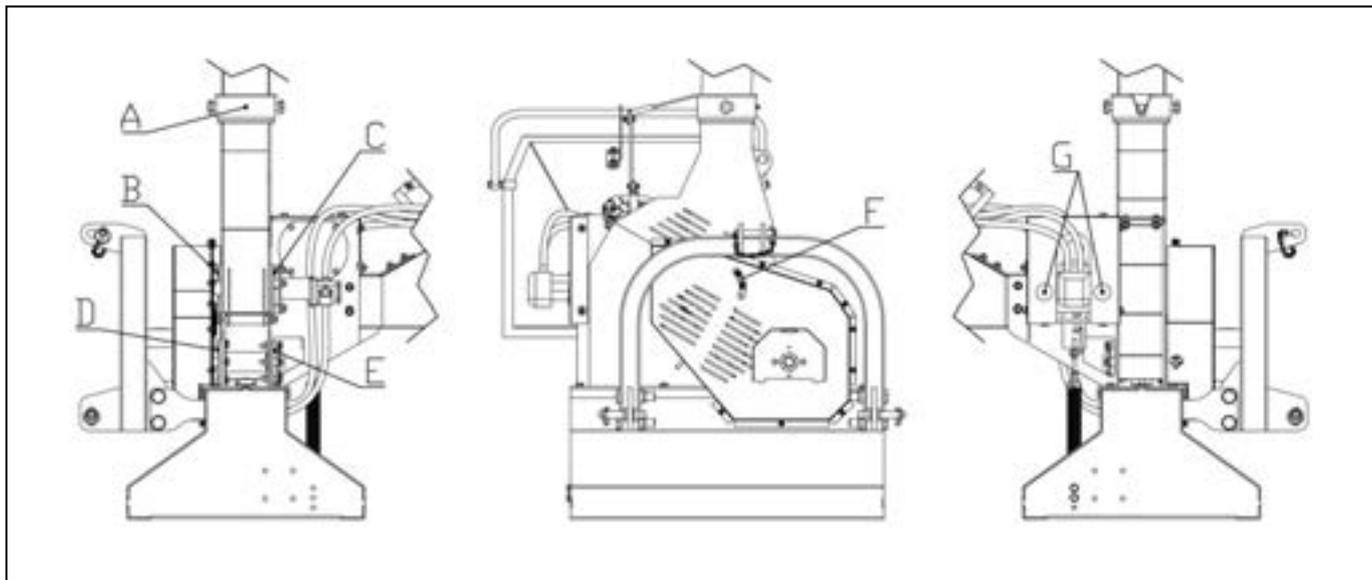
During the first hour operation the driving belts lengthen and set.

After the first start, it will be necessary to check the driving belts ' tension in order to prevent the driving belts from early damage. In order to do so read the instructions at page 17, paragraph 6.

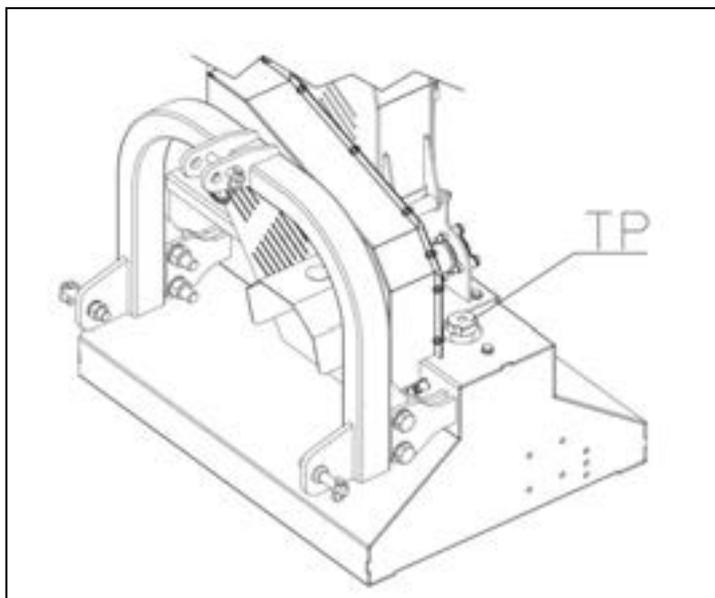
Before taking any maintenance measures, switch the engine off, disconnect the PTO and make sure that the rotor is completely still.

## 1. GREASING

Within the deadlines indicated in the "A" form, grease the following points : "A", "B", "C", "D", "E", "F", "G". All the greasing points indicated in the "A" form are provided with greaser HYDRAULIC FORM "A" UNI 7663. For greasing we suggest you to use exclusively NLGI 2 MULTIFUNCTIONAL-GREASE containing LITHIUM.



## 2. HOW TO CHECK THE OIL LEVEL AND HOW TO CHANGE IT.

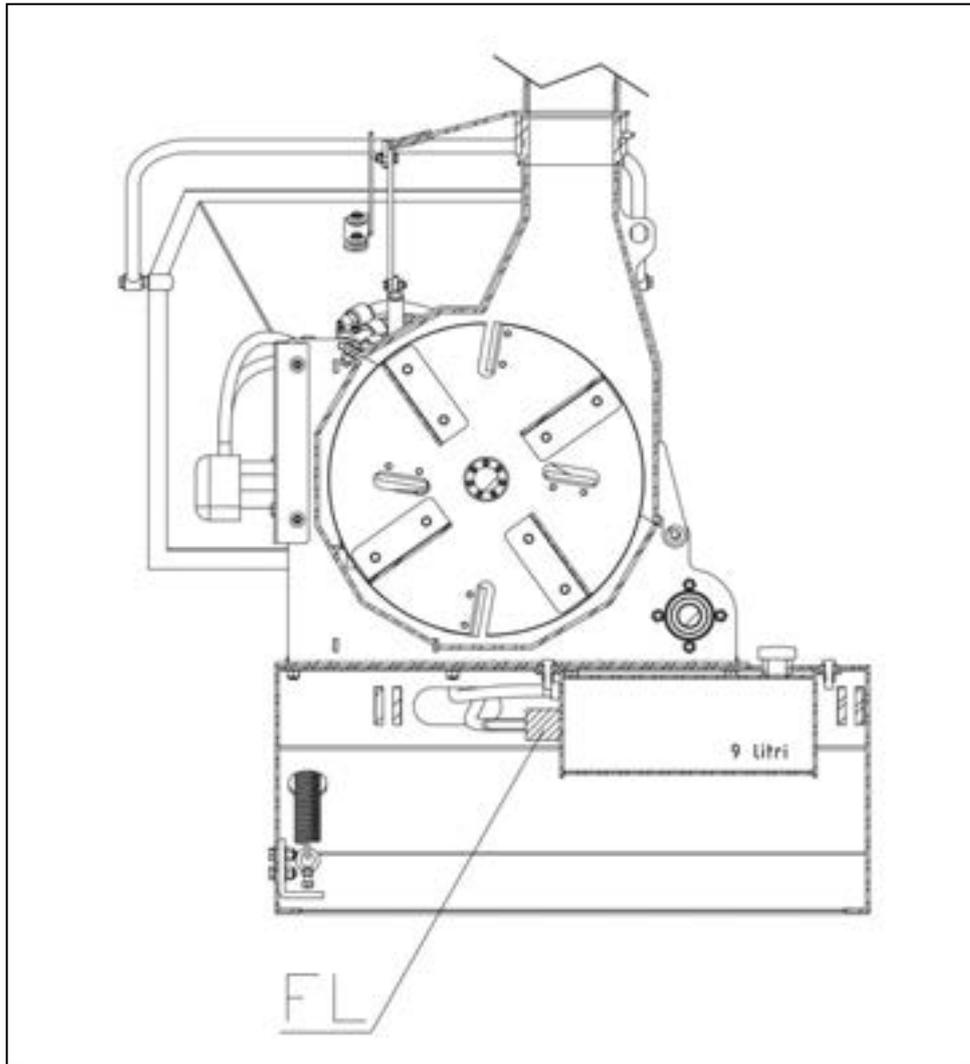


Within the deadlines indicated in the "A" form, check the level and change the oil contained in the tank. For filling the tank, we suggest you to use exclusively **NU TO H46 HYDRAULIC OIL**. Capacity of the tank: 9 liters.

a) Please read the following instructions to check the level of the oil:

1. Unscrew the "TP" cap and check the level of the oil by using the dipstick attached to the cap.
2. If the oil level is too low, fill the tank with new oil of the recommended quality.
3. Once you will have filled the tank with enough oil, screw the "TP" cap again.

### 3. OIL FILTER SUBSTITUTION



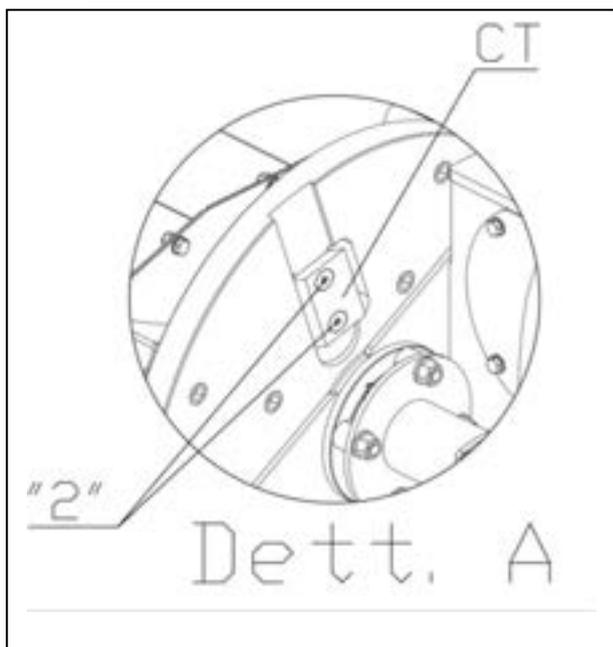
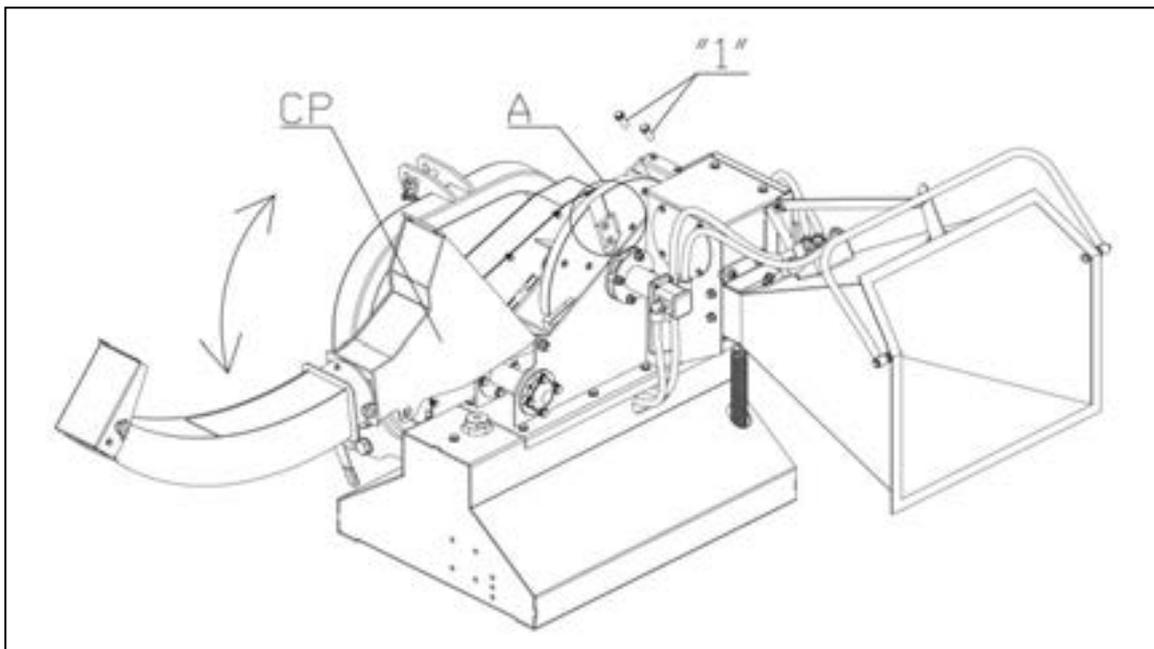
a) To substitute the oil filter, please read the following instructions:

1. Couple the machine with the lift and raise it completely.
2. We suggest you to place a container under the filter in order to collect any waste oil leakage.
3. Unscrew and remove the "FL" filter.
4. Replace it with a new filter.

#### **WARNING**

When you start the machine for the first time, replace the filter after the first 50 hours of work. Afterwards follow the scheduled maintenance instructions indicated at page 12 of the "A" form.

#### 4. KNIVES SHARPENING, REVERSING OR SUBSTITUTION



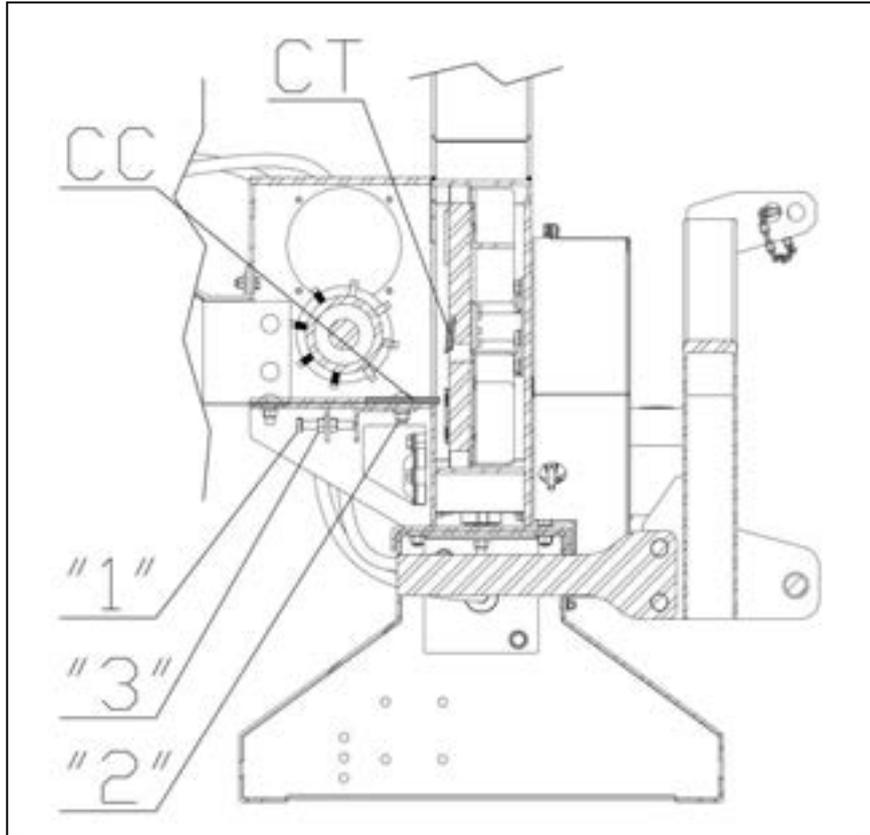
a) If you want to check the conditions of both the rotor and knives, please read the following instructions:

1. Stop the machine.
2. Unscrew the bolts and swing the "CP" component.
3. Check the conditions of the four knives by rolling the rotor with your hand. If the knives are in good conditions but need to be sharpened, please sharpen them as follows:
4. Clean the hole of the screws indicated in the side figure with the number "2" with a sharp tool.
5. Unscrew the two screws corresponding to the number "2".
6. Remove the "CT" knife.
7. Sharpen the knives by using particular machines that ensure a sharpening angle of 45°.
8. Put the "CT" knife back and tighten the two screws corresponding to the number "2".
9. For all the other knives repeat the same procedure from the point number 4 to the point number 8.
10. Put the "CP" component back to the starting position, fixing it with the two bolts number "1".

b) To turn the knives over, please read the following instructions:

1. Use your hand to roll the rotor so that the knife is within the reach of the user.
2. Clean the hole in the two screws number "2" with a sharp tool.
3. Unscrew the two screws indicated with the number "2".
4. Remove the "CT" knife.
5. Reverse it by 180° and replace the current knife with another original knife.
6. Put the "CT" back and tighten the two screws number "2".
7. Repeat the same procedure from the step 2 to the step 6 for the other knives.
8. Put the "CP" component back to the starting position and fix it with the two bolts number "1".

## 5. COUNTER-KNIFE REGULATION AND REVERSING

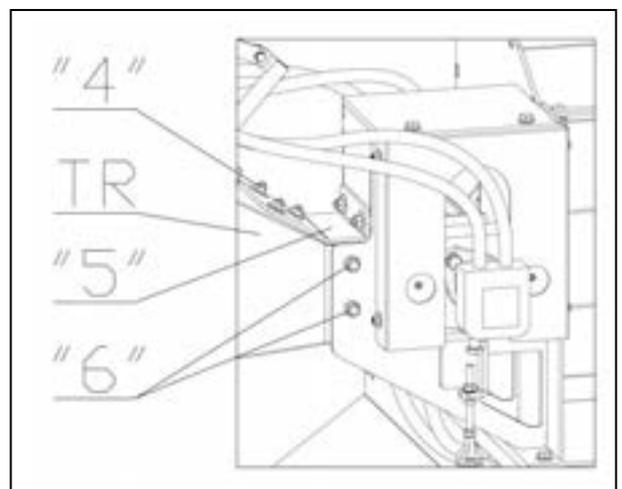


a) In order to regulate the counter-knife, please read the following instructions:

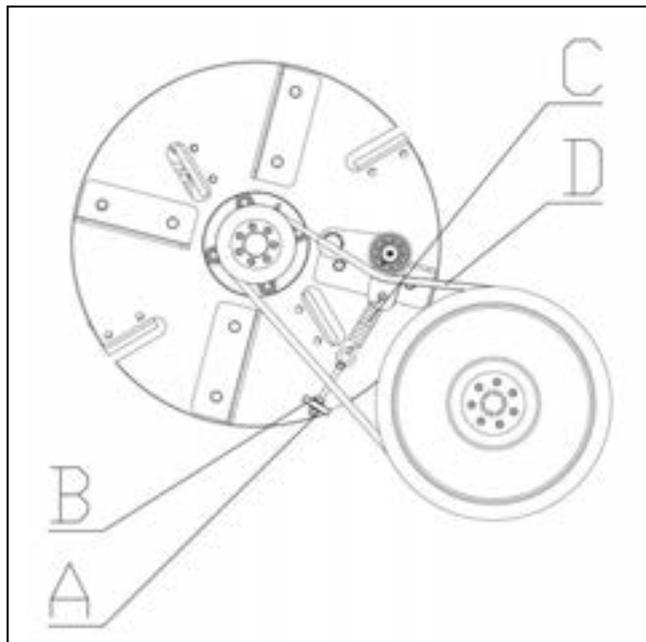
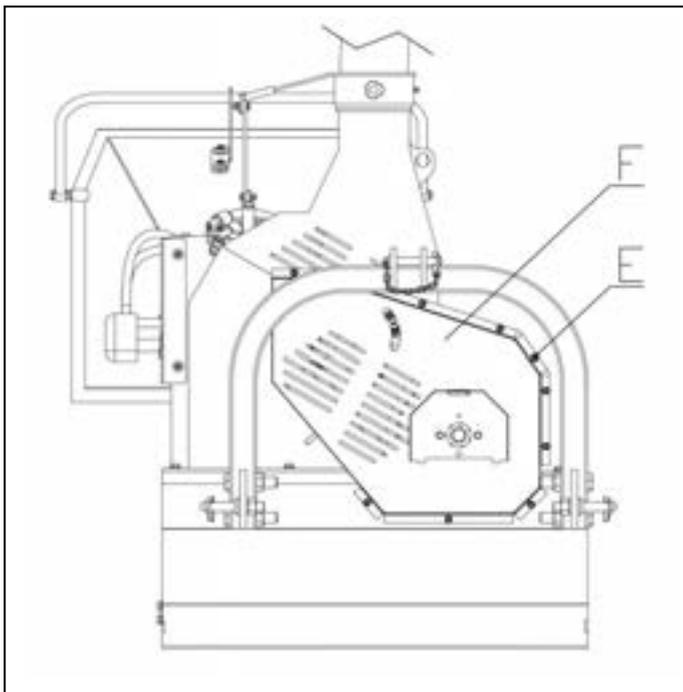
1. Unscrew the lock nuts number "2".
2. Use your hand to roll the rotor until the "CT" knife moves closer to the "CC" counter-knife.
3. Loosen the counternuts number "3" and regulate the space between the knife and the counter-knife by tightening the screws number "1". The right distance between the knife and the counter-knife is between 1.6 mm and 3.2 mm.
4. Make sure that the correct distance is respected for all the four knives.
5. Tighten the counternuts and the two lock nuts number "2".

b) In order to reverse the counter-knife, please read the following instructions:

1. Unscrew the three bolts "4" on the support "5".
2. Unscrew the six screws "6".
3. Remove the "TR" hopper from the machine.
4. Unscrew the two lock nuts "2" blocking the "CC" counter-knife.
5. Reverse the "CC" counter-knife by 180° keeping the superior surface of the counter-knife unchanged.
6. Regulate the counter-knife by following the procedure from step 2 to step 5.
7. Put the "TR" hopper back.
8. Tighten the screws number "6" and "4".



## 6. DRIVING BELT REGULATION AND REPLACEMENT.



a) In order to regulate the driving belt:

1. Take apart the "F" protection case by unscrewing the ten "E" bolts.
2. Unscrew the "B" counter nuts and screw "A" nut in order to tighten belts or unscrew the "A" nut to loosen them. The tension is correct if the belts yield a bit when pressing them on their exterior side with your thumb
3. the belt is regulated, screw the "B" counter nut again and put the "F" belt protection back at its place.

b) To replace the driving belts, read the following instructions:

1. Remove the "F" belt protection by unscrewing the ten "E" bolts.
2. The "B" counter nut and unscrew the "A" lock nut completely.
3. Remove the two damaged "D" belts. In order to avoid any tension problems, both of them have to be substituted with two new belts.
4. Repeat the steps "2" and "3" of the "a" paragraph.

**DYSFUNCTIONS AND SOLUTIONS**

<b>DYSFUNCTIONS</b>	<b>CAUSES AND SOLUTIONS</b>
<b>Strange vibrations.</b>	<ul style="list-style-type: none"> <li>-damaged knife – Check the knife and replace it if necessary.</li> <li>-damaged counter-knife - Check the counter-knife and replace it if necessary.</li> <li>-jammed machine – Clean the grinding chamber.</li> <li>- Wrong speed of the feed roller– use the regulator screw in order to raise/decrease the speed.</li> </ul>
<b>Reduction of the discharged material.</b>	<ul style="list-style-type: none"> <li>- damaged knife - Check the knife and replace it if necessary.</li> <li>- damaged counter-knife - Check the counter-knife and replace it if necessary.</li> <li>- jammed machine - Clean the grinding chamber.</li> <li>-damaged or not sufficiently under tension - Check and replace if necessary.</li> <li>- Wrong speed of the feed roll - Agire sul regolatore per aumentare/diminuire la velocità.</li> </ul>
<b>Material that the machine refuses or has difficulties to accept with difficulties</b>	<ul style="list-style-type: none"> <li>damaged knife - Check the knife and replace it if necessary .</li> <li>- damaged counter-knife - Check the counter-knife and replace it if necessary.</li> <li>- Wrong speed of the feed roll - Agire sul regolatore per aumentare/diminuire la velocità.</li> </ul>

## TRANSPORT

When the machine is not used, it can be moved only if the drive unit is disconnected.

**<Important>** : Move slowly trying to avoid street holes.

**<Note>** : On the street, respect the new street code and attach the road signs on the posterior side of the machine. Follow the local rules.

**<Operations>** : Block the elevator bars of the tractor by using chains that have to be parallel to the bars. It prevents the bars to move laterally.

## DEPOSIT

Keep the machine in clean places.

## INFORMATION CONCERNING THE DEMOLITION OF THE MACHINE



At the end of the machine's life, it has to be demolished only by authorized enterprises in respect of the National rules for the environment protection. So, it is necessary to ask the local authorities for the demolition procedures. The principal parts of the machine are made of metal, plastic and epoxy paints.

## WARRANTY

The machine is covered with a 24 months warranty.

: The warranty expires when:

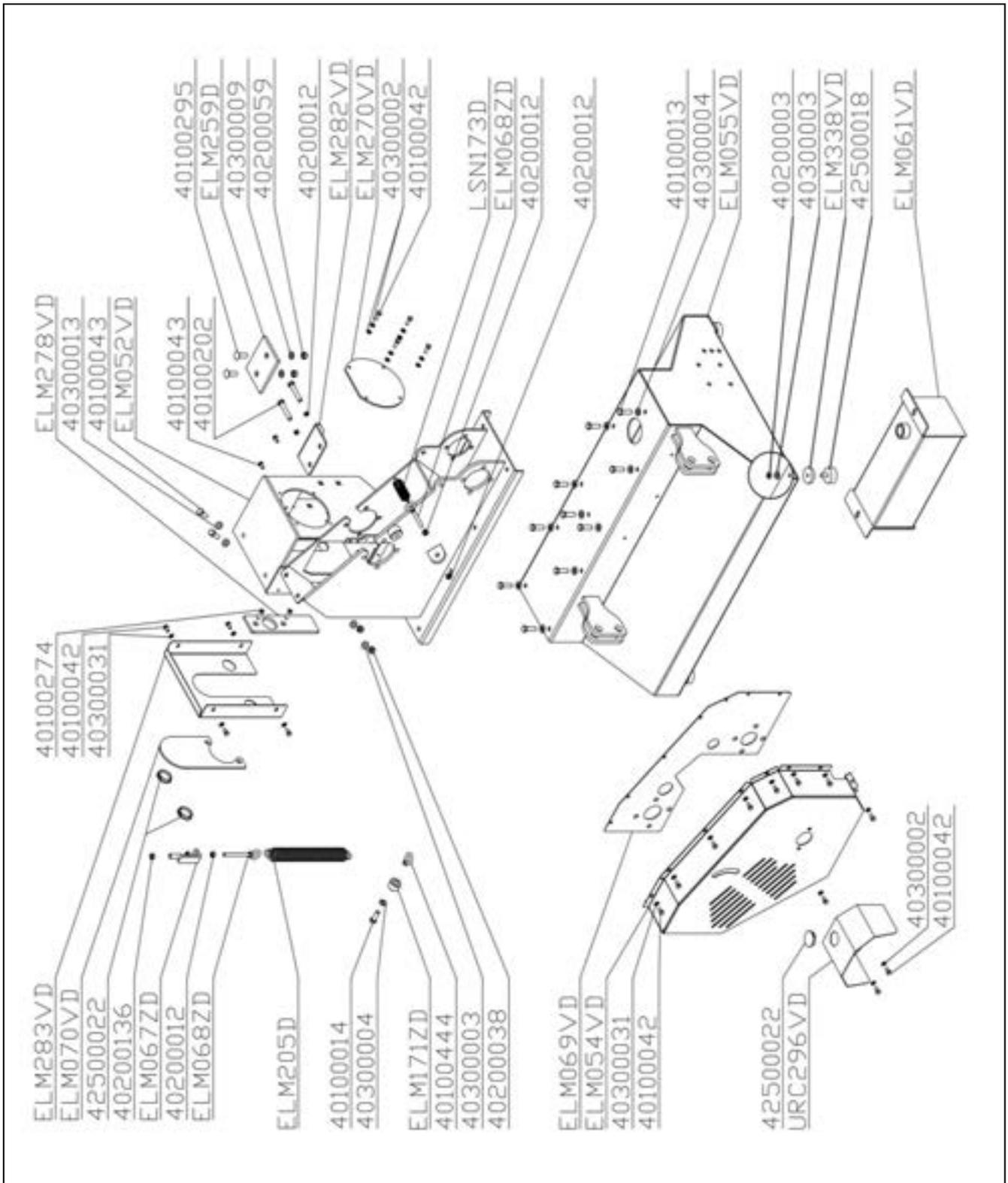
- a) The machine undergoes wrong maintenance procedures
- b) The machine is used in wrong places.
- c) The machine is used without obtaining the constructor's permission.



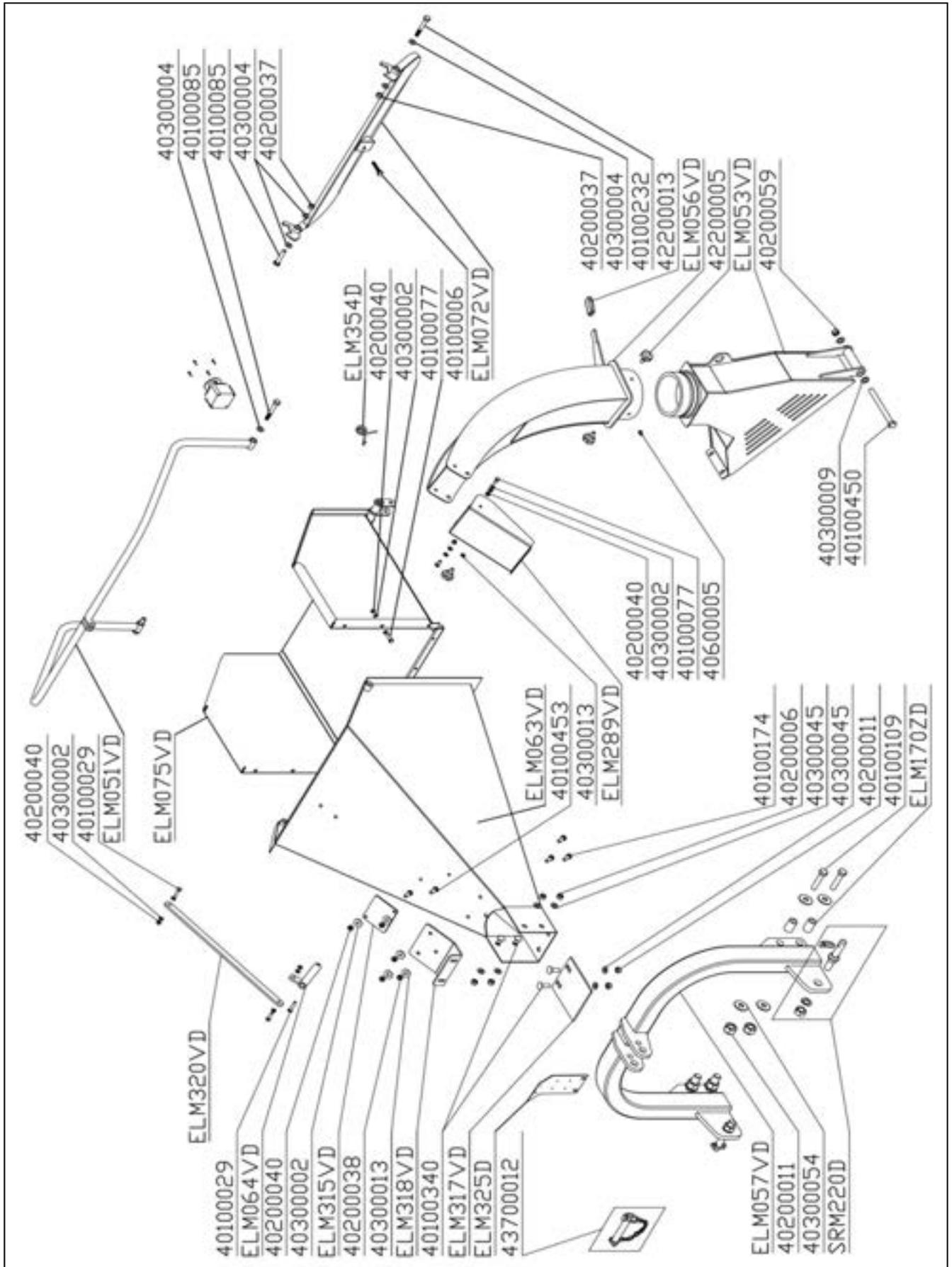
## **SPARE PARTS LIST**



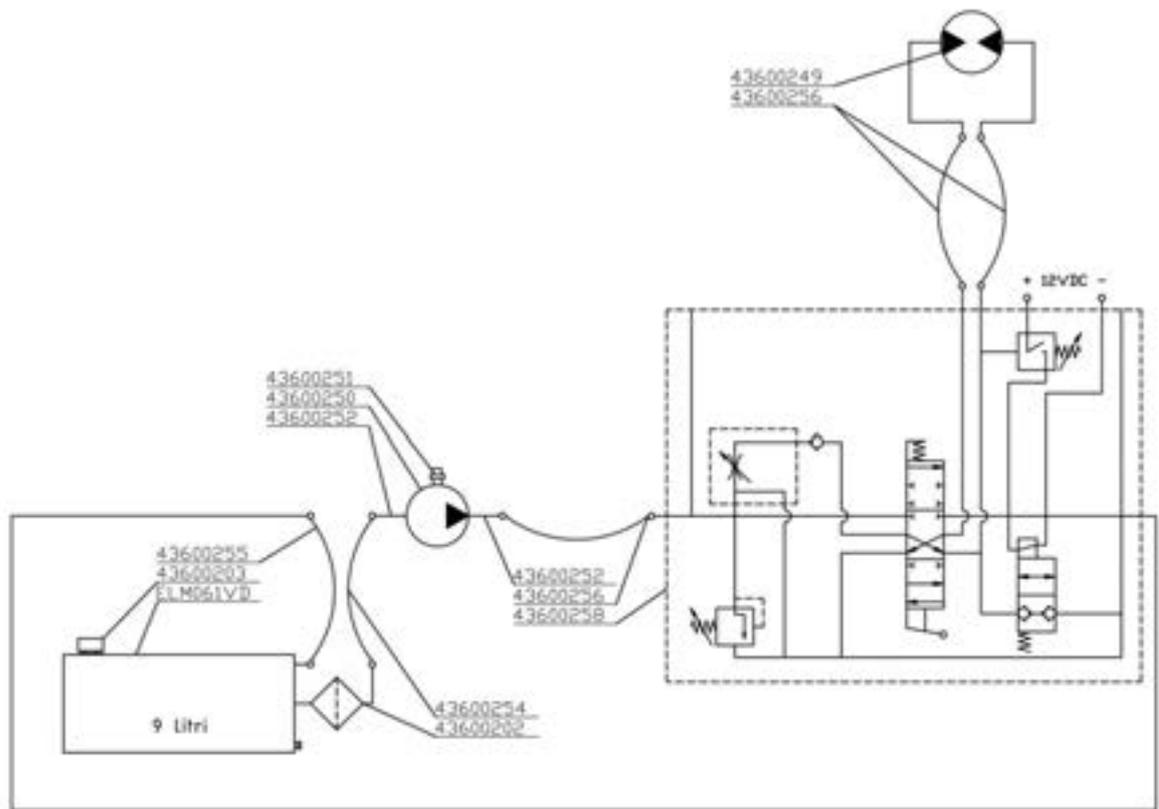
MACHINE STRUCTURE



HOPPER -EXHAUST TUBE - THIRD POINT



NO STRESS HYDRAULIC SYSTEM



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