

## MANUAL OF USE AND MAINTENANCE

# PROFESSIONAL FLAIL MOWER LEVANTE MODEL



## PREFACE

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

It must always accompany the machine and be kept within reach of the operator.  
The enclosures mentioned are an integral part of this manual.

### **The purpose of this manual.**

This manual gives information for the correct and safe use of the machine.  
The owner must read this manual carefully before work with the machine.

### **Responsibility of the owner**

The owner is responsible for accidents or damages caused to people or things due to negligence in following the instructions in this manual.

### **Assistance in using this manual**

Explanations: contact the dealer.

Request for additional copies of the manual: in case of loss or wear and tear, or in case one wants the manual in a different language, the customer should ask the dealer or manufacturer.

### **Pay attention to the warning signals**



**<Danger>**: indicates a situation that is potentially dangerous which, if not avoided, will cause death or serious damage.



**<Warning>**: indicates a situation that is potentially dangerous which, if not avoided, will cause death or serious damage.



**<Caution>**: indicates a situation that is potentially dangerous which, if not avoided, can cause minor to moderate damage, or it indicates to be careful about an unsafe procedure.

**<Important>** : indicates instructions that must be followed precisely in order to avoid damage to the product, process or environment.

**<Note>**: indicates supplementary information.

<b>DESCRIPTION</b>
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## **FUNCTION OF USE**

The machine according to the different tools can makes different functions like cut grass, cut up poles exc.  
The use of a technical constructive concept trended to the search of high performances, reduction of troubles and durability, improves the power/consumption ratio of the tractor thanks to the elasticity of the machine frame, to the tools shape, to the perfect rotor balancing and to many original technical solutions.

## **PERFORMANCES**

The machine is connected to the tractor by a three points hitch that gives the motion of translation and with a PTO shaft connected with the tractor PTO that gives the motion of rotation to the hoes shaft.

The working width is fix and it is determined from the choice of the machine type.

The cutting height is adjustale.

The working area can be centered or moved in comparison with tractor axis using the hydraulic shifting device.

The rear roll adjusts the cutting height and provides to tread the cut material.

## **PERFORMANCES LIMIT**

- ❑ Maximum speed: 5 km/h. Speeds greater than the maximum can compromise the condition of the machine, the quality of the work and the safety of the operator.
- ❑ Maximum power applicable to the gear box: 46 Kw  $\pm$  5% with 540 or 1000 r.p.m. Superior power to which is indicated can damage irreparably the transmission gear box; especially during heavy works.

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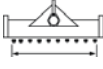







## **STANDARD EQUIPMENTS**

- **Standard PTO shaft IV category.**
- **Free wheel device inside gear box.**
- **Fix 3 point hitch.**
- **Transmission by four V-belts.**
- **Adjustable rear roll in 3 positions.**
- **Adjustable slides.**

## **VARIANT & OPTIONS**

- **Blade tools.**
- **Hammer tools.**
- **Hydraulic side shift hitch.**
- **Rear roll extension kit.**
- **Additional steel skids.**
- **Transformation kit from 540 rpm to 1000 rpm**

**TECHNICAL SPECIFICATIONS**

MODEL	HP	KW									Rotor r.p.m.	
			cm	cm	cm	n°	n°	cm	kg	lbs	AxBxC Cm/Inch	g/min
<b>FIX HITCH</b>												
LEV 160 F	80- 120	60- 90	160	71	95	26	52	2-12	449	990	182x100 x100	2380
LEV 190 F	80- 120	60- 90	190	75	117	30	60	2-12	487	1073	208x100 x100	2380
LEV 220 F	80- 120	60- 90	220	88	130	32	64	2-12	524	1155	234x100 x100	2380
LEV 250 F	80- 120	60- 90	250	101	143	36	72	2-12	587	1294	260x100 x100	2240
<b>HYDRAULIC SIDE SHIFT HITCH 400 mm</b>												
LEV 160 H	80- 120	60- 90	160	82 (52)	84 (114)	26	52	2-12	509	1122	182x100 x100	2380
LEV 190 H	80- 120	60- 90	190	96 (56)	96 (136)	30	60	2-12	550	1212	208x100 x100	2380
LEV 220 H	80- 120	60- 90	220	109 (69)	109 (149)	32	64	2-12	585	1290	234x100 x100	2380
LEV 250 H	80- 120	60- 90	250	122 (82)	122 (162)	36	72	2-12	647	1426	260x100 x100	2240

## SAFETY INFORMATION

### GENERAL INSTRUCTIONS

- ❑ Work in daylight only.
- ❑ To prevent damage due to the launching of objects or parts of blades, before to start job be sure that any persons or animals should be in the radius of 50 meters from the machine.
- ❑ Wear long pants and heavy shoes.
- ❑ The protections are integral part of the machine: always work with the protections.
- ❑ Pay attention to the soil: make sure that are not stones, sticks, iron wires, etc...
- ❑ Pay attention using the machine on slopes: proceed to the maximum slope and never work in slanting direction.
- ❑ Before leaving the driver's seat, turn off the engine and disengage the transmission engine-shaft.
- ❑ Check immediately the machine if it touches foreign objects.
- ❑ Check immediately the machine if there are unusual strong vibrations.
- ❑ Change quickly defective parts.

#### ❑ **CAUTION – WARNING :**

**Gear box has inside a free wheel device, after P.T.O. disconnection rotor turns for at least 30 seconds, before approach the tools be sure that the rotor is stopped.**

#### ❑ **WARNING :**

**To prevent damage to the PTO shaft and to the gear box, do not start the machine roughly.**

### SAFETY RESTRICTIONS

Children and people who are not familiar with these instructions must not be permitted to use the machine. Local regulations can restrict the use of the machine in accordance to the age.

### RUNNING IN

- ❑ A new machine needs a running in. At the first use connect the machine to the tractor, connect the PTO shaft, pull down the machine at 15 centimeter from ground then start the P.T.O. and gradually bring it to 540 r.p.m... Run the machine for about 15 minutes. A whistle in the supports zone it is normal and it's due to the arrangement of the support protection, it will disappear in a few times.

## SAFETY SIGNS ON THE MACHINE

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



1

2

3

4

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6

1. Read the operator manual.
2. Disconnect the tractor key before maintenance and repair operations.
3. Stay at safety distance from blades when machine is moving.
1. Danger of flying objects. Stay at safety distance.
4. Stay at safety distance from blades when machine is moving.
5. Stay at safety distance from blades when machine is moving.

### **The safety signs on the machine must always be legible.**

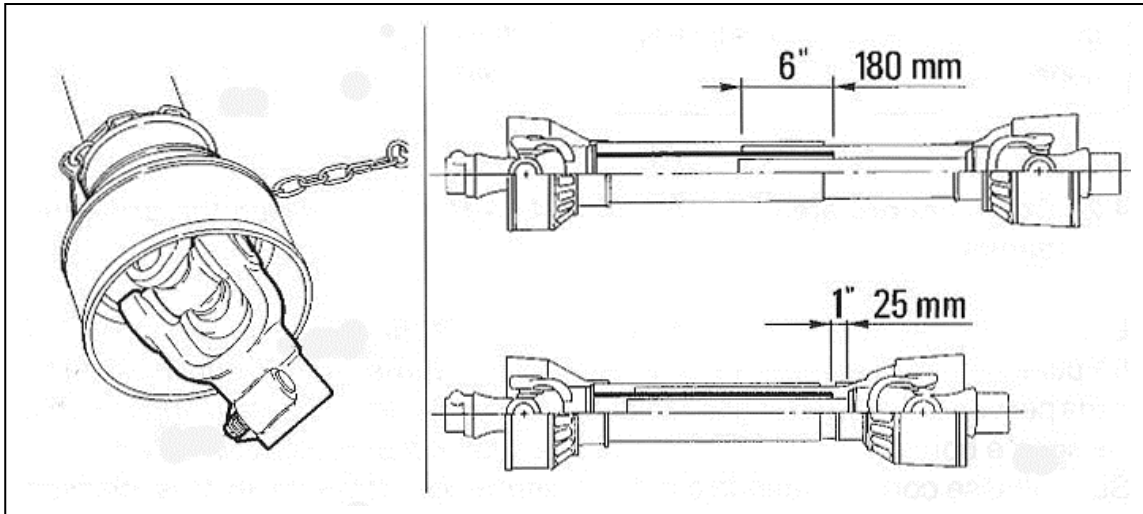
In case of damage, the labels of the signs must be substituted.

In the case of the substitution of machine parts that have safety signs, the signs must be replaced.

### **Supplying of new safety labels and the application procedure**

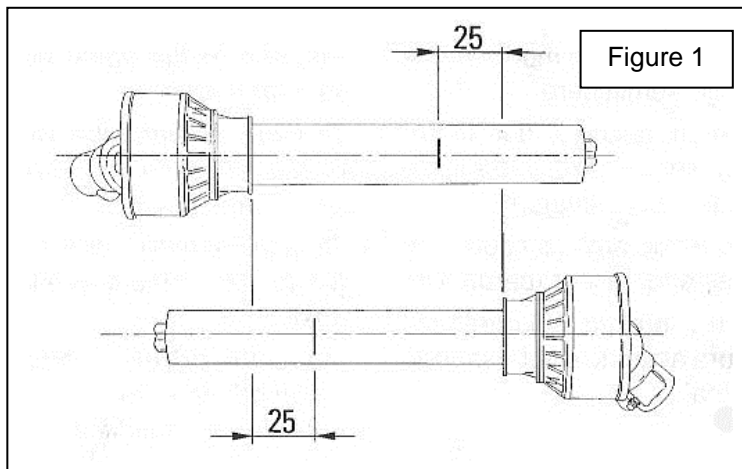
Contact your dealer to receive new safety labels with instructions for application.

## CARDAN SHAFT LENGTH CHECKING

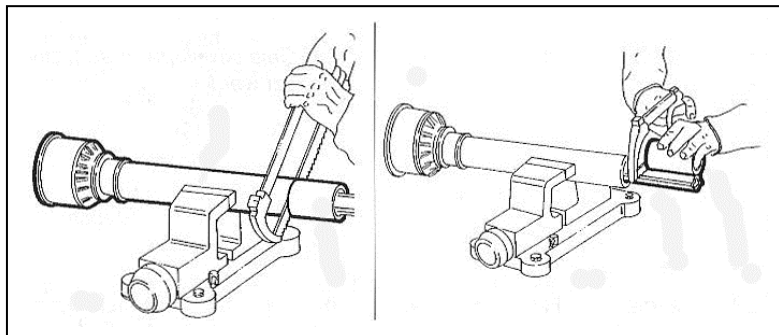


1. After having linked up the machine to the third point, please check it is placed in a horizontal and central position in relation to the tractor using the adjustment devices.
2. Place the PTO shaft between the tractor's PTO and the machine's PTO.
3. Check the length of the PTO shaft.
4. The length 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 THE CARDAN SHAFT



1. Move the machine 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 machine'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 machine and check its length another time.

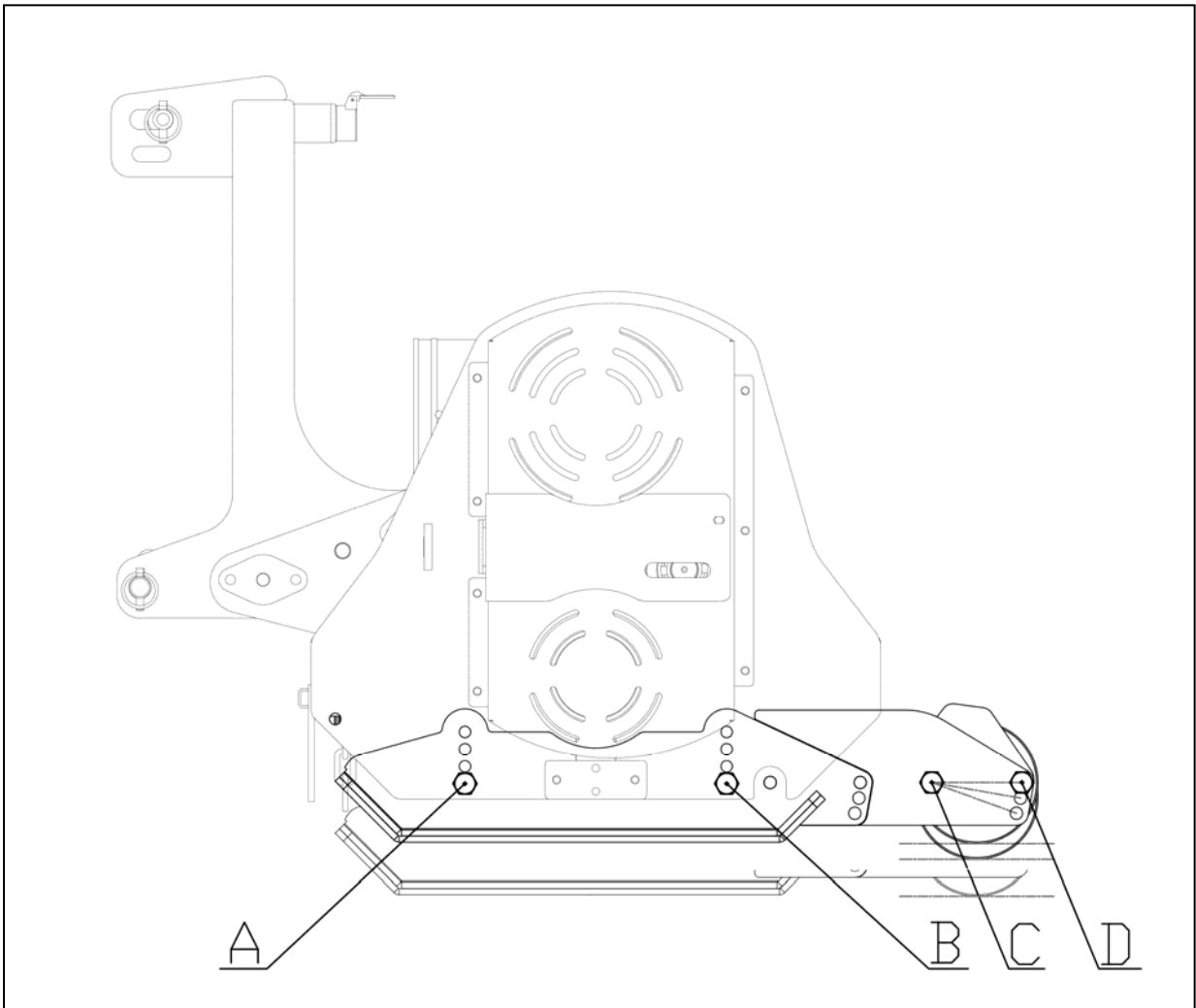


## INSTRUCTIONS FOR USE

### 1. BEFORE BEGINNING WORK

a) Adjust the slides as follows :

1. Unscrew the 2 screws "A" and "B" then take out them.
2. Set the position of the slide.
3. Insert again the screws "A" and "B" in place then lock them.
4. Repeat the same operations on the other side of the machine, be sure that both slides are adjusted in the same way.
5. Loosen the screw "C", and unscrew the screw "D" and take them out.
6. Adjust the position of the roll, screw again "D" in the place and then tighten the screws "C" and "D".
7. Repeat the same operations on the other side of the machine, be sure that both supports are adjusted in the same way.



- b) Hook the machine to the tractor, operate as follows :
  1. Remove the safety pins then take out the pins from the two lower connection points of the machine.
  2. Plug in the raising tractor beams into the lower hitch points of the machine, plug in the pins, and lock with the safety pins.
  3. Connect through tie-rod the third hitch point of the tractor with the third point of the machine (the connection triangle vertex), insert the pin and lock with safety pin.
- c) With the machine raised, go to work area.
- d) Connect the tractor PTO with machine PTO.
- e) Check that PTO chain is locked to prevent the protection sheet of PTO rotating.

## **2. TO BEGINNING WORK**

- a) Keep people and animals at least 65 feet radius all around the machine.
- b) Pull down the machine until the hoes touch the ground.
- c) Connect PTO power and gradually bring it to 540 r.p.m..
- d) Pull down completely the machine and start to work.

## **3. AT THE END OF CUTTING OPERATION**

- a) Stop the tractor and wait at least 30 seconds that the rotor is completely stopped.
- b) Raise the machine until the hoes goes out from ground.
- c) Disconnect PTO power.
- d) Disconnect tractor PTO from machine PTO.
- e) Raise completely the machine.

<b>INSTRUCTIONS FOR THE MAINTENANCE</b>
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On diagram "A" the maintenances are indicated with their terms to effect on the machine.  
 Not follow the scheduled terms can compromise the functionality of the machine and in this case the warranty is not applicable.

**DIAGRAM "A" SCHEDULED MAINTENANCE**

	<b>FIRST START</b>	<b>AFTER 10 H.</b>	<b>EACH 30 H.</b>	<b>EACH 500 H.</b>	<b>END SEASON</b>	<b>START WORK</b>	<b>END WORK</b>
<b>MACHINE</b>	Greasing		Greasing		Cleaning Greasing		Cleaning
<b>GEAR BOX</b>	Oil level	Oil level	Oil level	Change oil			
<b>SCREW</b>		Screw	Screw				
<b>TOOLS</b>			Check		Check	Check	Check
<b>BELTS</b>	Check	Check		Replacement			

**NOTICE :**

The transmission belts seat itself stretching during the first hour of operation of the machine.  
 To prevent a premature wear of the due to an excessive slip, after the first start it is necessary to check belts tens following instructions of the paragraph 4 on page 13.

## 1. GREASING

At the scheduled time on diagram "A", grease the 7 points "A" "B", "C", "D", "E", "F".  
Greasing point is equipped with greaser HYDRAULIC TYPE MODEL "A" UNI 7663.  
To greasing use only MULTIFUNCTIONAL GREASE LITHIUM BASED Type NLGI 2.

## 2. OIL CHECK - OIL REPLACEMENT IN GEAR BOX

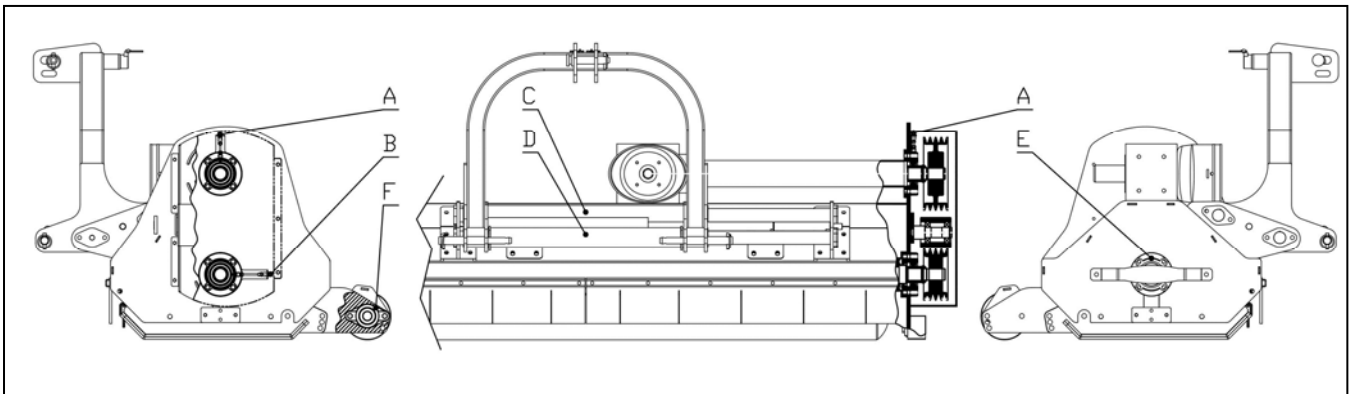
At the scheduled time on diagram "A", check or replace oil into gear box.  
To fill oil use only OIL SAE 140 EP.  
Gear box capacity: 1,5 L

a) To check oil level into the gear box, operate as follow :

1. With the machine on level, remove the safety plastic cover from the front side of the gear box, unscrew plug "TL" and check that oil touches on lower hole rim.
2. If the level is ok, screw plug "TL".
3. If the level is low, unscrew plug "TR" and refill.
4. When the level is ok, screw plug "TL" and "TR".

b) To change oil into the gear box, operate as follow :

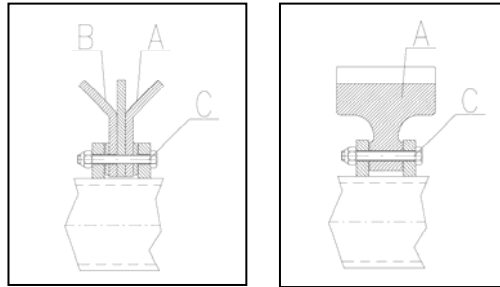
1. Remove the safety plastic cover from the front side of the gear box, unscrew plugs "TL", "TR" and the discharge plug "TS", wait until all oil has exited.
2. Screw the discharge plug "TS" then fill oil from plug "TR".
3. When level is ok, screw plugs "TL" and "TR" and assemble the safety plastic cover.



### 3. TOOLS REPLACEMENT

a) To change tools, operate as follow :

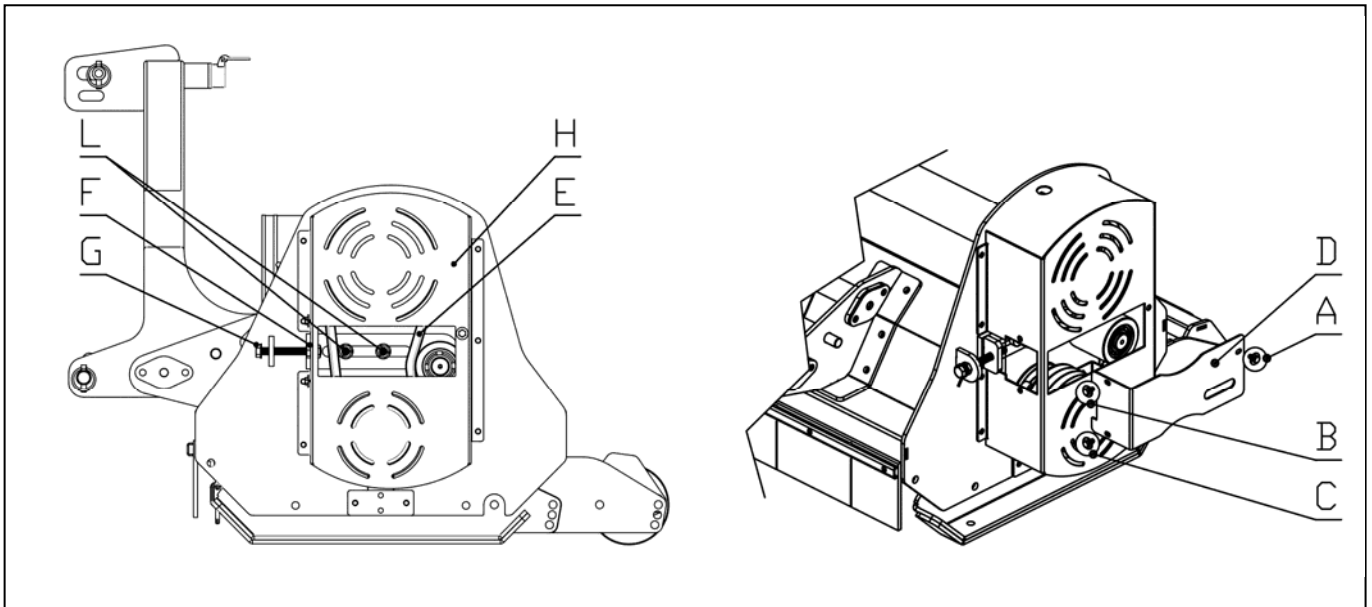
1. Unscrew the nut then take out the screw "C".
2. Take out knives "A" and "B" with spacers. If tool is an hummer "A" there are no spacers.
3. Assemble the new tool.
4. Fit the screw "C" then screw the nut.
5. **ATTENTION: all tools must be of the same type.**
6. **ATTENTION: changing type of tools you must balance again the rotor.**



### 4. BELTS ADJUSTING AND REPLACEMENT

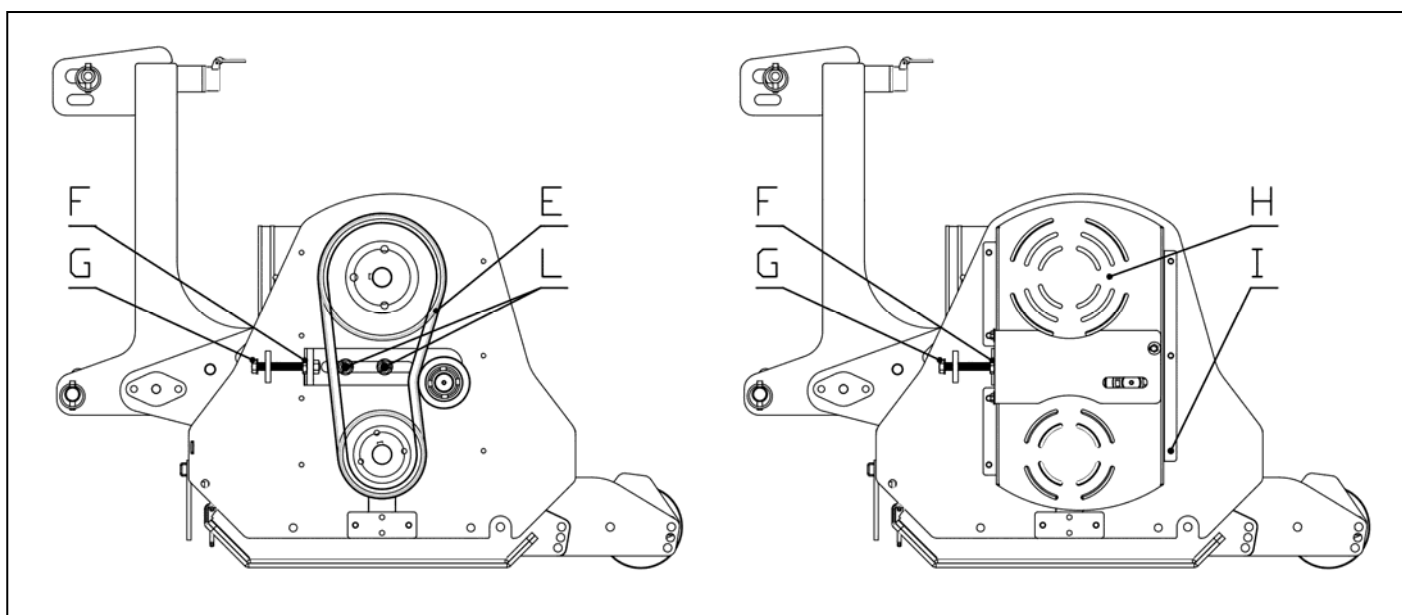
a) To adjust the tension of the transmission belts, operate as follow :

1. Disassemble the cover "D" unscrewing the 3 screws "A", "B", "C".
2. Unscrew the lock nut "F" and unlock the 2 screws "L", screw "G" to tension the belts or unscrew to decrease the tension. The tension is correct when pushing by a thumb on external surface of the belts these sag some mm.
3. After the operation screw again the lock nut "F" and the 2 screws "L" then assemble the cover "D".



b) To replace the drive belts, proceed as follows :

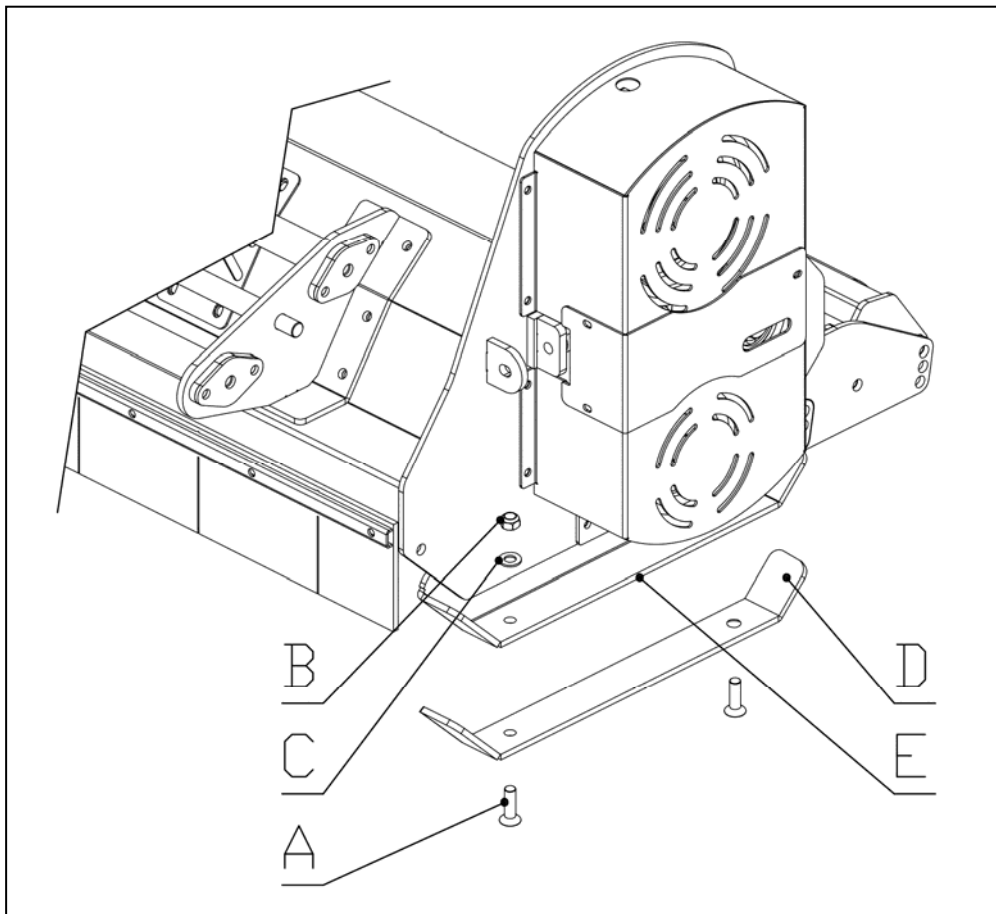
1. Disassemble the cover "H" unscrewing the 7 screws "I".
2. Unscrew the lock nut "F", loosen the 2 screws "L" and unscrew completely the adjusting screw "G"
3. Take off the 4 worn belts "E".  
**Attention:** to avoid tensions problems, the belts must be replaced with original ones, noticing the features from the SPARE PART LIST.
4. Assemble the new 4 belts.
5. Screw "G" until the optimal tension. The tension is right when pushing by a thumb on the external side of the belts these sag some mm.
6. Once the adjustment is made, screw again the lock nut "F" and the 2 screws "L", assemble again the cover "H".



## 5. ASSEMBLING OF THE ADDITIONAL STEEL SKIDS

a) To assemble the additional steel skids proceed as follows:

- 1 Close the additional skid "D" to the slide "E"
- 2 Insert the 2 screws "A" in the holes
- 3 Tighten screw "A" with nut "B" and washer "C"
- 4 Make again the same operation from the other side of the machine.



## 6. ASSEMBLING OF THE 1000 R.P.M. KIT

In order to assemble the transformation kit from 540 rpm to 1000 rpm it is necessary to disassemble the transmission and replace some components.

a) To disassemble the transmission follow the instructions below :

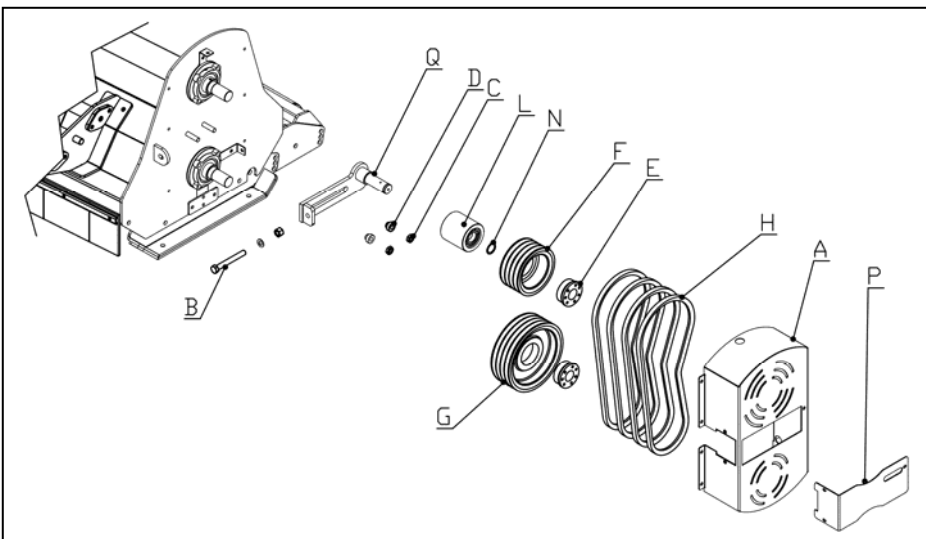
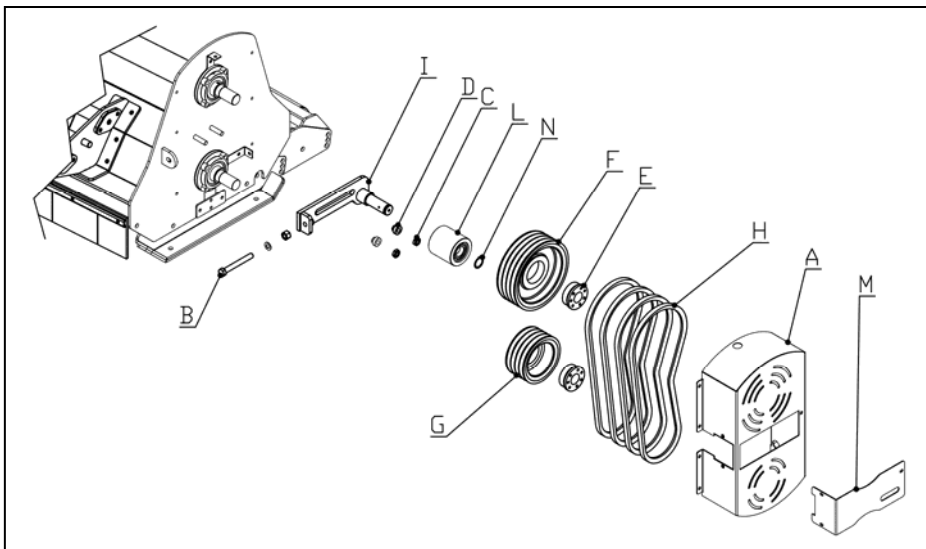
- 1 Take off the cover "M"
- 2 Take off the protection "A" .
- 3 Loosen completely the screw "B" of the tensioner removing the nut and the washer
- 4 Unscrew completely the 2 nuts "C" and take off the 2 spacers "D"
- 5 Loosen the 2 "E"
- 6 Remove the pulleys "F" and "G" and the 4 belts "H"
- 7 Remove the belt tensioner "I" including the roll "L"
- 8 Remove the seeger "N" and slip off the roll "L" from its axle.

b) Replacement of the components:

- 1 Replace the old cover "M" with the new one "P" provided with the kit
- 2 Replace the old body "I" of the tensioner with the new one "Q" provided with the kit.

c) To re-assemble the transmission, follow the instructions below:

- 1 Follow backwards the points from 8 to 1 of the paragraph (a).

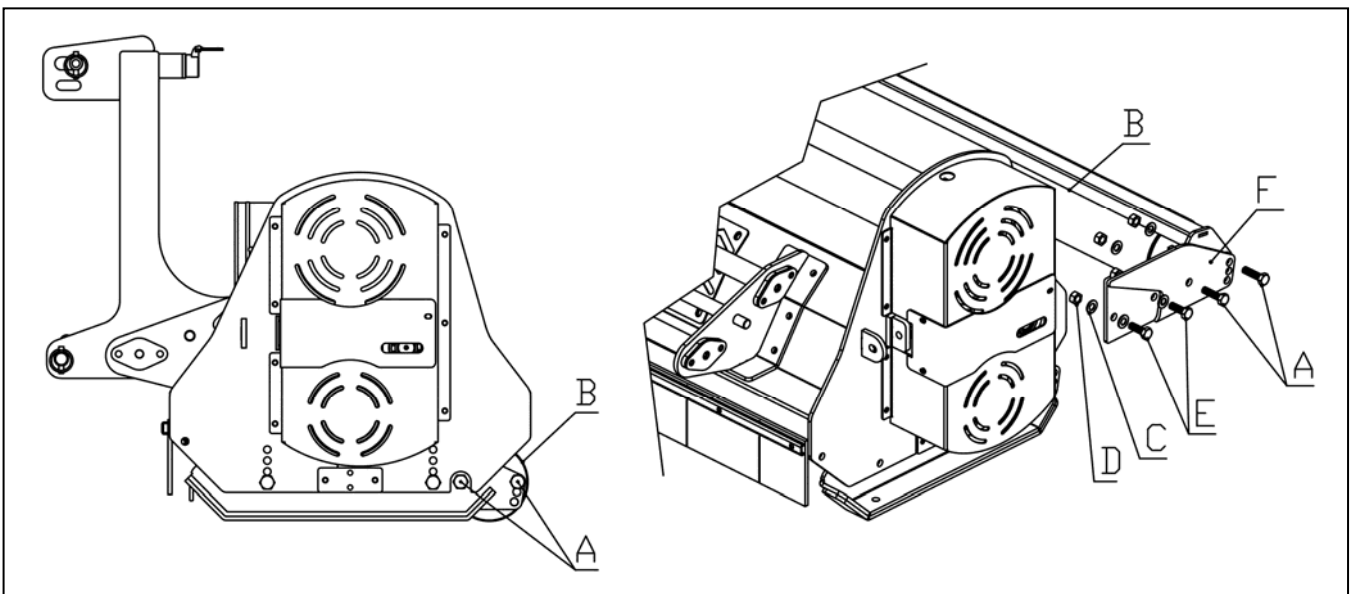




## 7. ASSEMBLING OF THE REAR ROLL EXTENSION

a) To apply the rear roll extension kit :

- 1 Unscrew completely the 2 screws "A" removing nuts and washers
- 2 Make the same operation on the other side of the machine
- 3 Remove the roll "B" with the relating supports
- 4 Assemble the right extension "F" on the right axle of the roll "B" using the screws "A" previously removed
- 5 Make the same operation from the on the other side of the machine
- 6 Slip on the extension, with the roll already assembled, in the 2 skids.
- 7 Insert the 2 screws "E", with the relating washers "C" and "D", in the corresponding holes.
- 8 Tighten the 2 screws "E"
- 9 Make the same operation on the other side of the machine



**PROBLEMS SOLVING**

<b>TROUBLES</b>	<b>GROUNDS AND SOLUTIONS</b>
<b>Abnormal vibrations</b>	-Rotor not balanced – Enquire a dealer. -Loss of one or more tools – Replace. -Damaged bearings – Replace.
<b>Uneven or unsatisfactory cut</b>	-Damaged tools – Replace. -Tools choice not good – Change with another type.

## TRANSPORT

Except when working, moving the machine takes place when the machine is standing still and the transmission is disconnected.

**<Important>**: keep speed low avoiding holes and ground roughness.

**<Important>**: Before begin the movements always make sure that the safety hooks be in position.

**<Note when** on the road, obey existing traffic laws. Exhibit the signal signs on the rear ends. Respect any local laws there may be.

## STORAGE

Store the machine in a dry place that isn't dusty.

## INFORMATION ON DEMOLITION



At the end of its working life, the machine must be sent to be demolished and that can only be done by an authorized authority, in accordance with the national laws in force for the environment. Therefore it is necessary to get information from the qualified local authorities on the procedure to follow. The machine is mainly composed of: iron materials and paints.

## WARRANTY

The machine is covered by the manufacturer warranty for a period of 24 months.

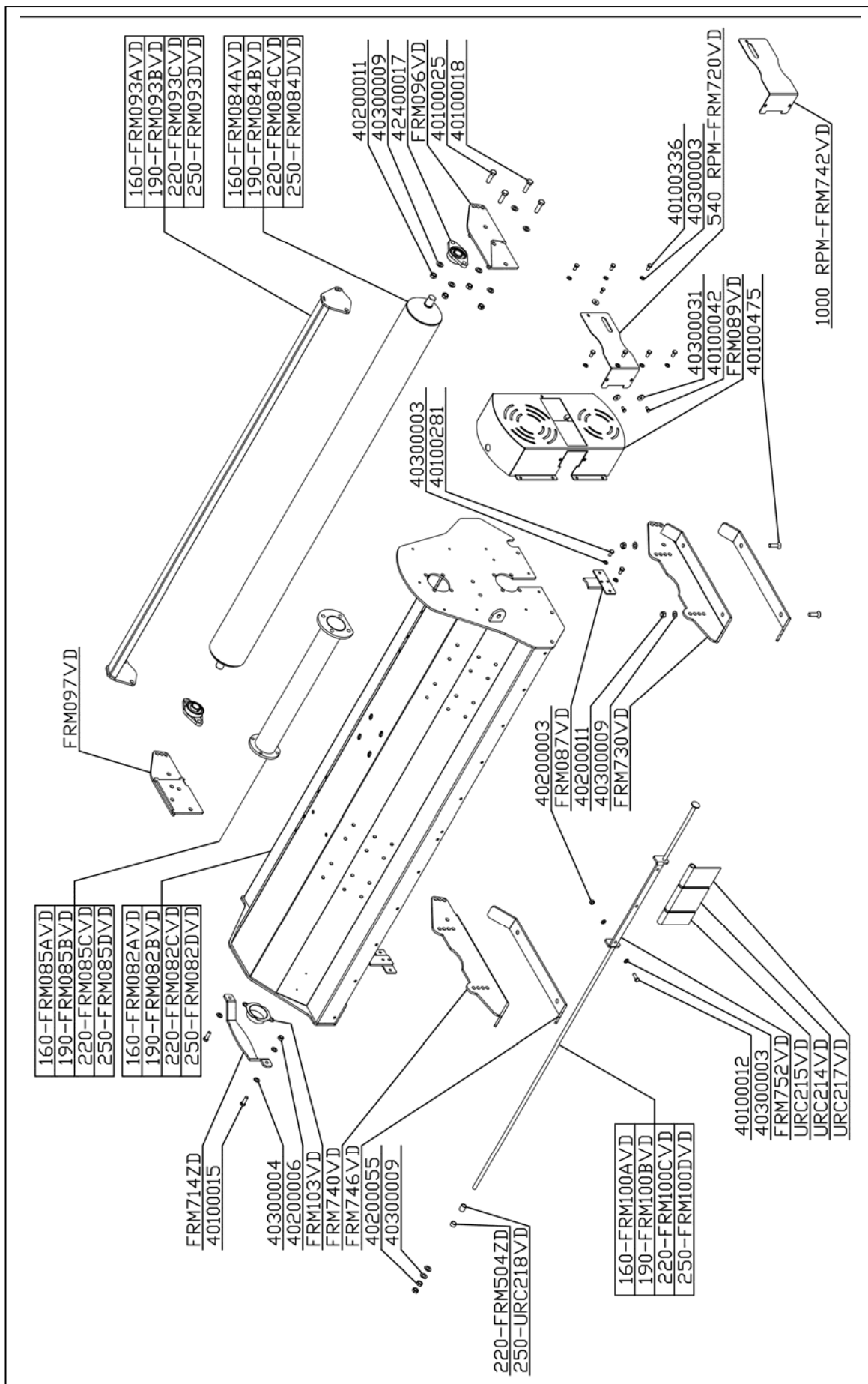
The warranty is not applicable when:

- a) The maintenance work has not been done correctly.
- b) The machine has been used out of its own service.
- c) The machine has been transformed or modified without the manufacturer's written authorization.

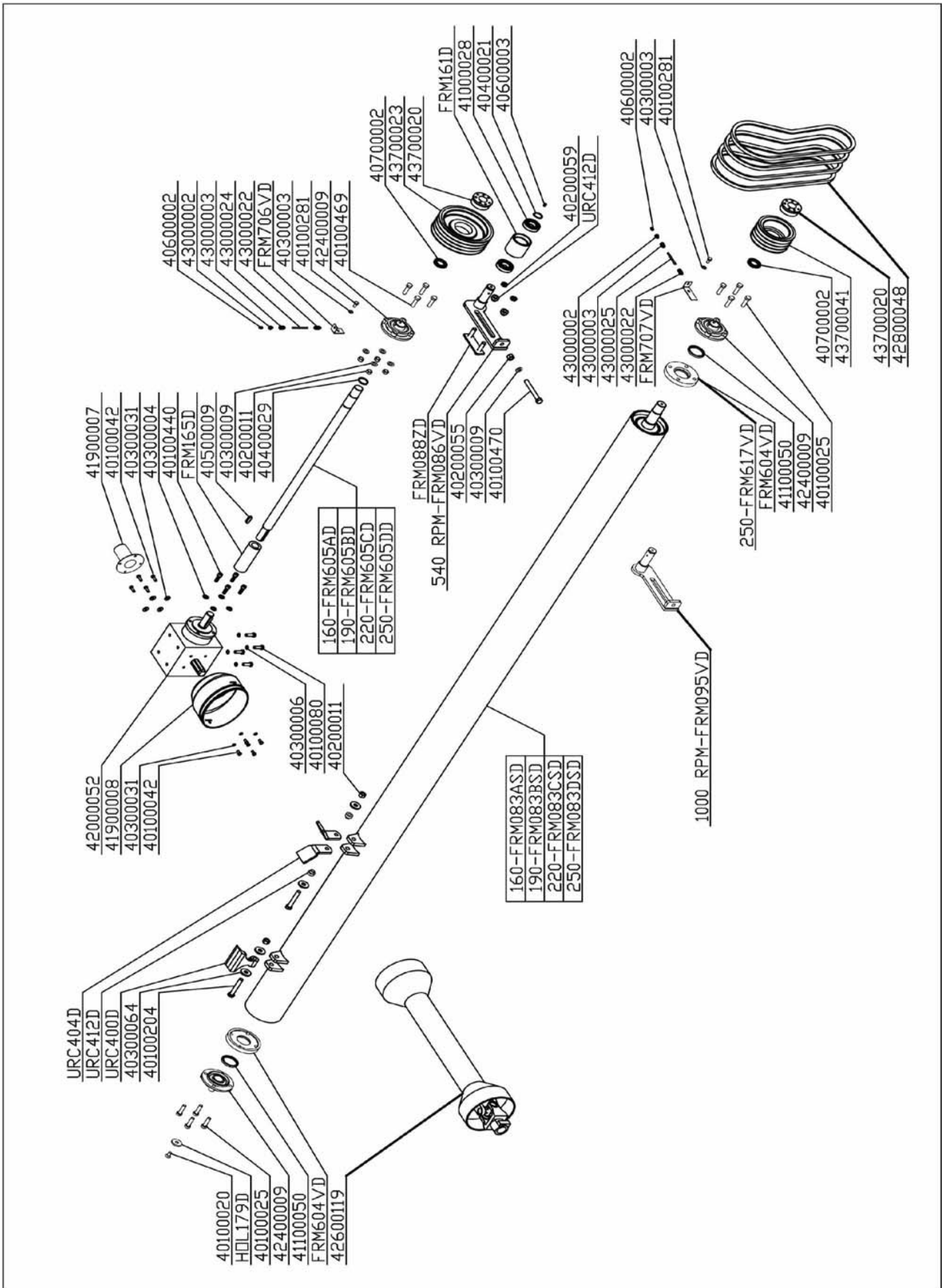


## **SPARE PARTS AND ACCESSORIES**

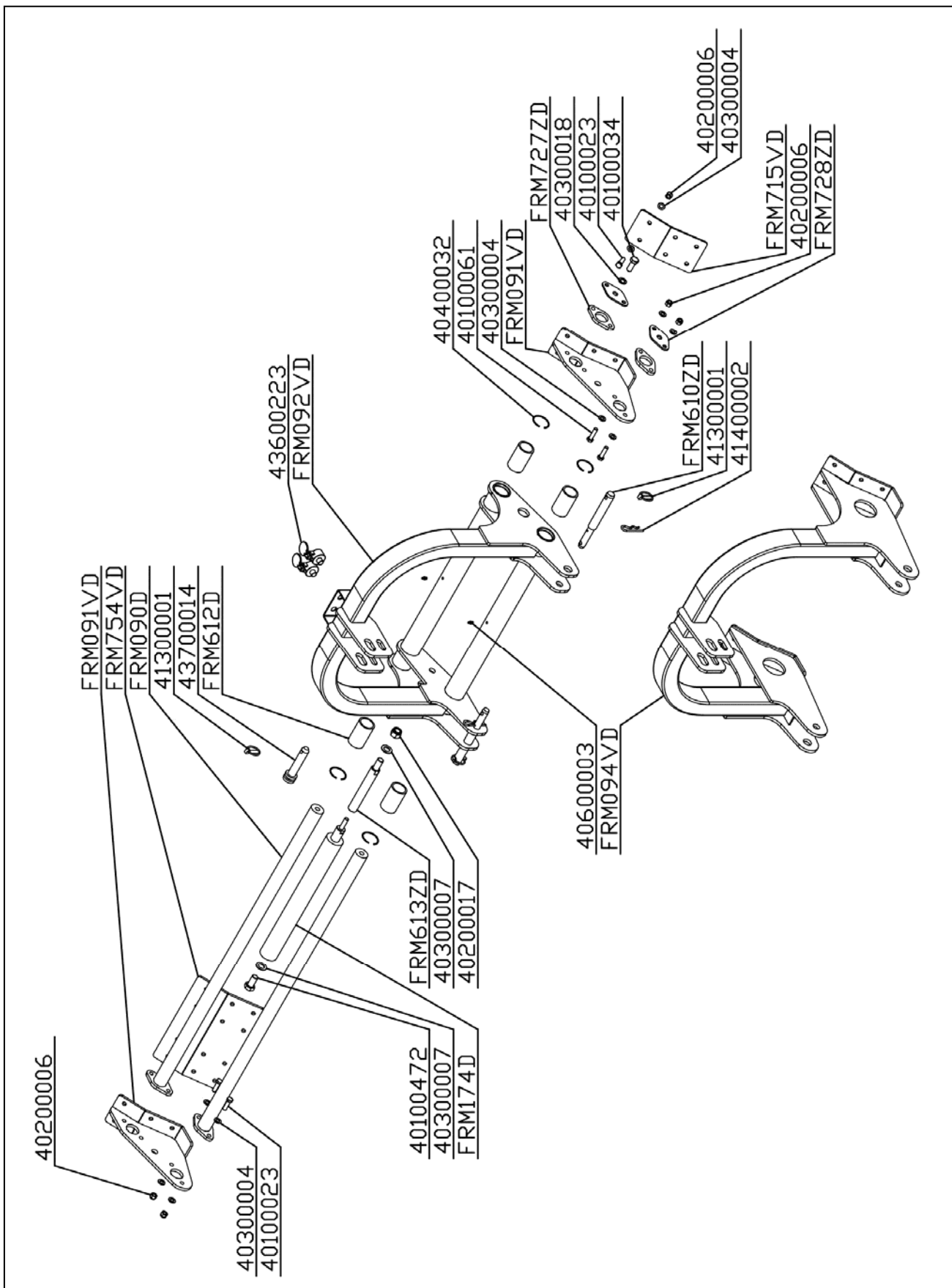
SHEETS



# MECHANISMS

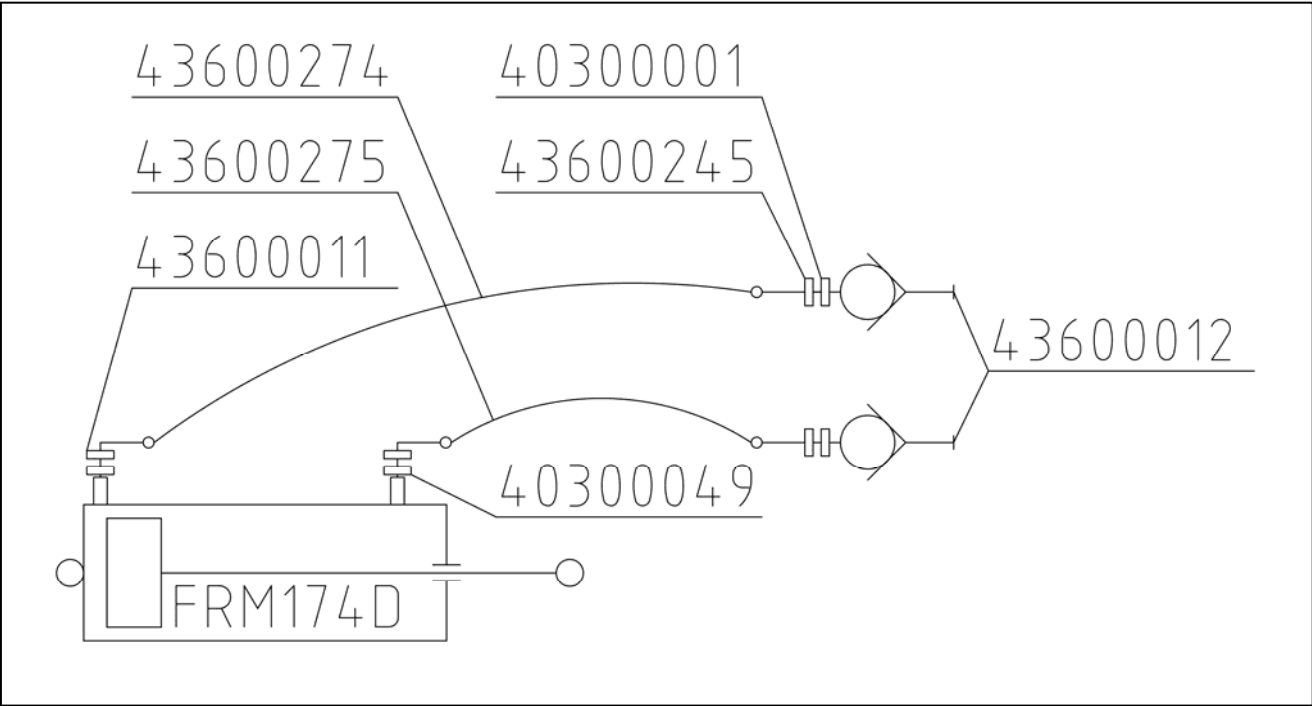


III POINT HITCH





HYDRAULIC PLANT



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