IBEX

USE AND MAINTENANCE MANUAL

TL73 Hydraulic Offset Flail Mower

PREFACE

This machine was proudly produced by Del Morino in Italy for
Ibex Equipment Co.

DEL MORINO SRL thanks you for choosing us and for confidence in the quality of our implements.

This manual is an integral part of the implement

It must always come with the implement and be at user's disposal.
All attachments are integral part of the manual.

The purpose of this manual

This manual provides information for the correct and safe use of the implement.
The owner must read this manual carefully before working with the implement.

Responsibility of the owner

The owner is responsible for accidents or damages caused to people or things due to negligence in following the instructions of 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 the manual is needed in a different language, ask the dealer or the manufacturer.

Pay attention to the warning labels

DANGER: indicates an imminent dangerous situation which, if not avoided, will cause death or serious injury and/or damage.

WARNING: indicates a potentially dangerous situation which, if not avoided, will cause death or serious injury and/or damage.

CAUTION: indicates a potentially dangerous situation which, if not avoided, can cause minor to moderate damage or it warns 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.

DESCRIPTION

FIELD OF USE

The implement is designed to cut grass, stalks, weeds, pruning and similar materials.

Thanks to the rigidity of the frame, the shape of the blades, the perfect dynamic balancing of the rotor and other original technical solutions, the implement offers high performance, reliability, durability and improved power/tractor consumption ratio.

PERFORMANCES

The implement is connected to the tractor through the 3-point hitch and a PTO shaft.

The parallelogram mechanism with hydraulic drive allows to move the machine to the right and to the left with respect to the tractor axis. The rotation mechanism with hydraulic drive allows to tilt the machine with respect to the ground.

The working width is fixed and is determined by the model.

The cutting height is adjustable.

The rear roller adjusts the cutting height and compacts the cut material.

PERFORMANCE LIMITS

- Maximum speed: 5 km/h (3 mph). A higher speed may compromise the integrity of the implement, the quality of the work and the safety of the operator.
- Maximum power applicable to the gearbox: 22 kW ± 5% at 540 RPM. Power higher than that indicated can damage the gearbox, especially when doing heavy-duty work.

STANDARD FEATURES

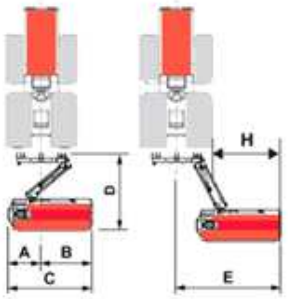
- Standard PTO shaft, VI category.
- Free wheel device integrated in the pass through shaft gearbox.
- Transmission with 3 belts.
- Adjustable rear roller with 4 positions.
- Adjustable skids with 4 positions.

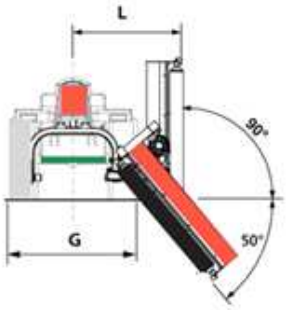
VARIANTS & ACCESSORIES

- Blades: Y blades.
- Blades: hammers blades.
- Additional skid kit for heavy wear situations.

TECHNICAL FEATURES

SPECIFICATIONS PER MODEL





	132	158	186
A	76 (30)	76 (30)	76 (30)
B	82 (33)	108 (43)	134 (53)
C	158 (63)	184 (73)	210 (83)
D	210 (83)	210 (83)	210 (83)
E	198 (78)	224 (89)	250 (99)
H			
G			
L	134 (53)	134 (53)	134 (53)

cm (in)

SAFETY INFORMATION

GENERAL REQUIREMENTS

CAUTION: To prevent damage due to the launch of objects or parts of blades, before starting to work, be sure that no persons or animals are within a radius of 50 meters (164 ft) from the implement.

- Work only during daytime.
- Wear long trousers and heavy shoes.
- The protective flaps and other devices are integral part of the implements: never work without the protective flaps or devices.
- Make sure that there are no stones, sticks, iron wires, etc on the ground.
- Pay attention when using the implement on slopes: proceed in the direction of the maximum slope and never work in oblique direction.
- Before leaving the driver's seat, disengage the engine-shaft transmission and turn off the engine.
- Check the implement immediately if it hits foreign objects.
- Check the implement immediately if it begins vibrating strongly.
- Change defective parts immediately.

ATTENTION, DANGER!

The gearbox is equipped with a free-wheel device. After stopping the PTO the rotor continues to spin for at least 30 seconds: before approaching the blades make sure that the rotor has stopped turning.

ATTENTION!

To prevent damage to the PTO shaft and to the gearbox, do not start the implement roughly.

SAFETY RESTRICTIONS

Do not allow children or people who are unfamiliar with the instructions to use the implement.

Local regulations may restrict the use of the implement based on age.

RUNNING IN

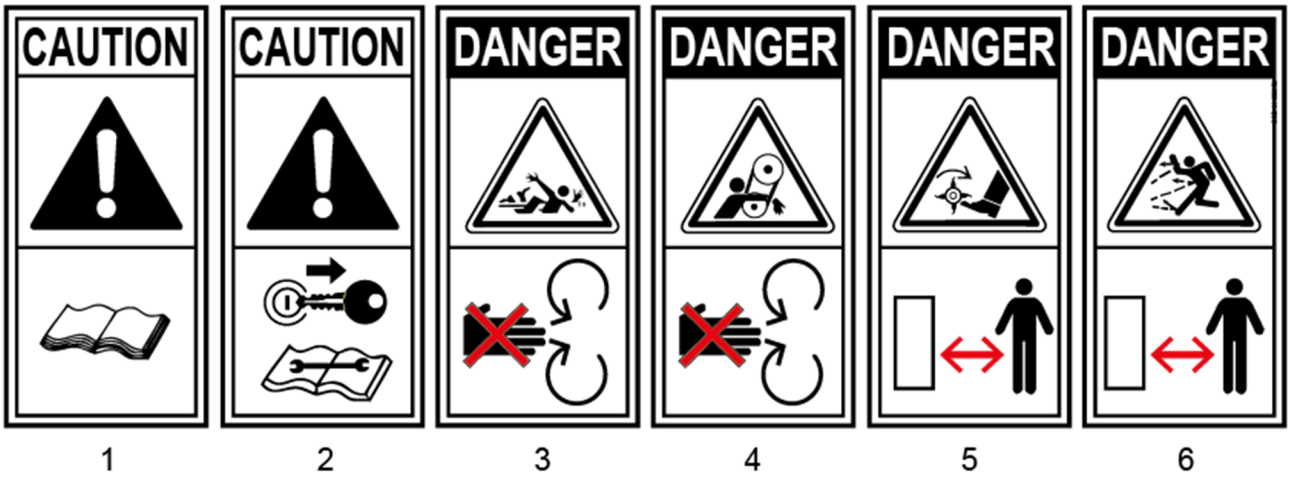
The new implement must be broken in.

During first usage, attach the implement to the tractor, connect the PTO shaft, lower the implement to 15 cm (6 in) from the ground, start the PTO and gradually increase the RPM to 540.

Let the implement run for about 15 minutes.

SAFETY LABELS ON THE IMPLEMENT

In this section, the safety labels of the implement are reproduced and explained.



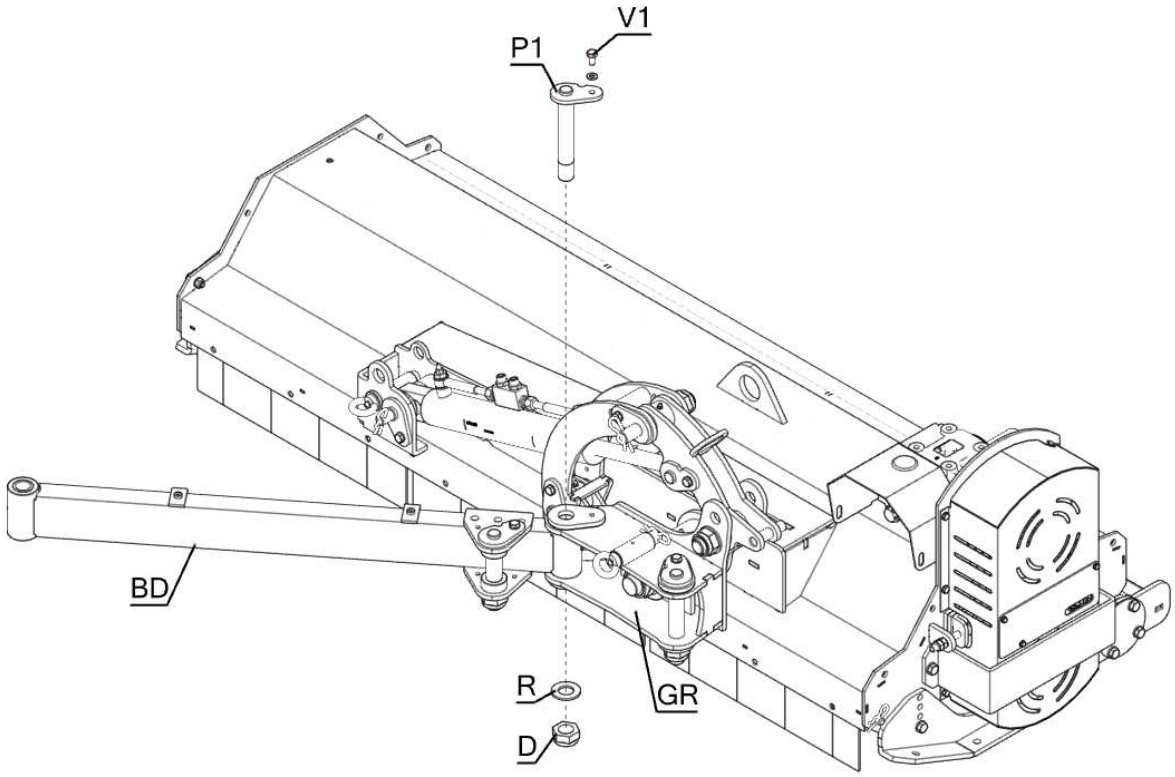
Pic. 1

Legend

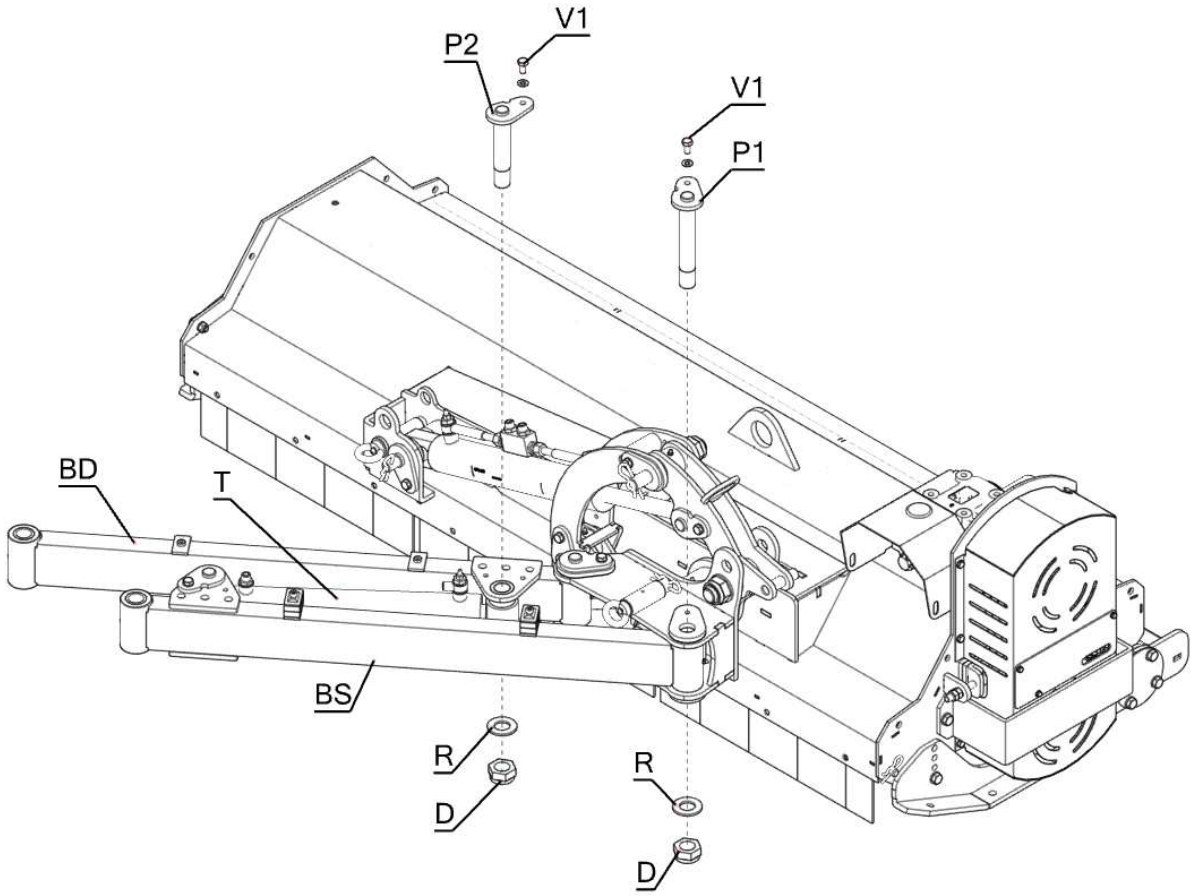
1. Read the manual.
2. Remove the key from the ignition of the tractor before performing maintenance or repairs.
3. Stay at a safe distance from the PTO shaft.
4. Stay at a safe distance from the transmission belts.
5. Stay at a safe distance from the tools.
6. Stay at a safe distance: possible flying objects.

BEFORE USING THE MACHINE FOR THE FIRST TIME

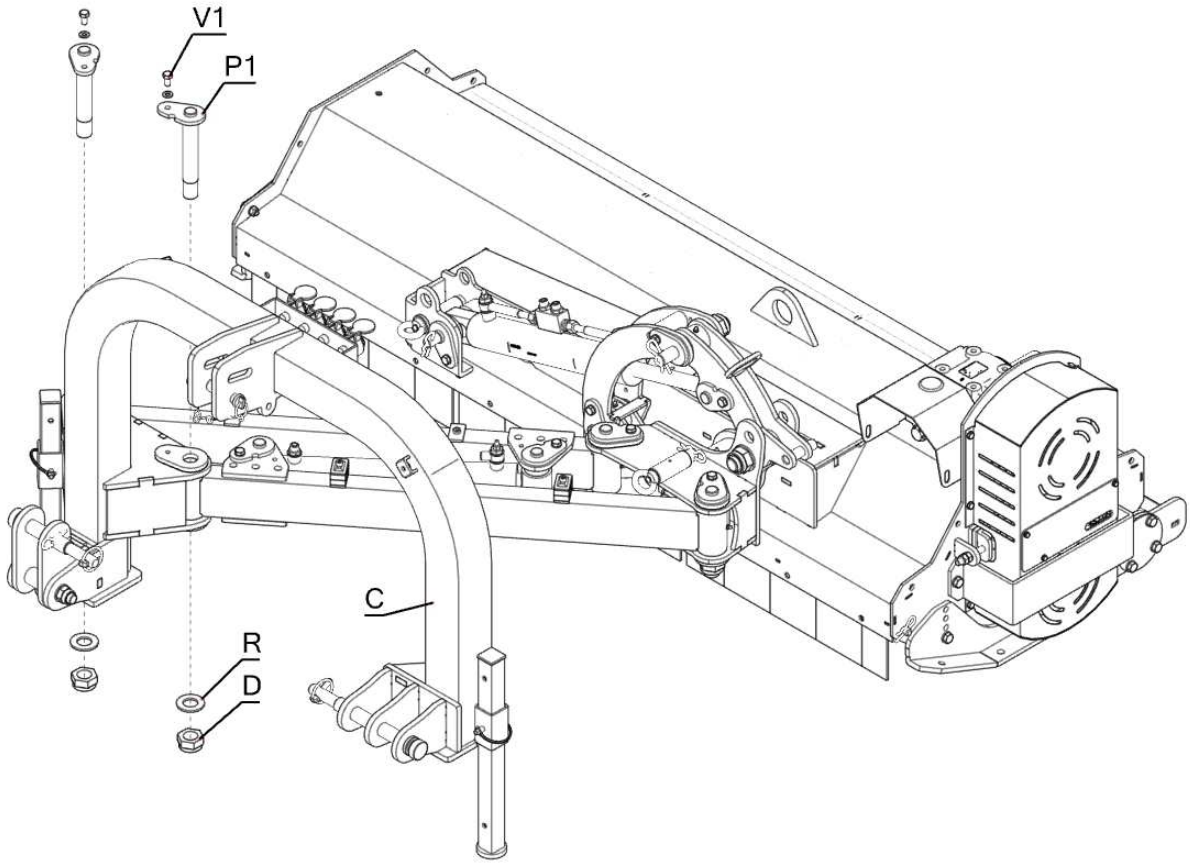
3-POINT HITCH ASSEMBLY



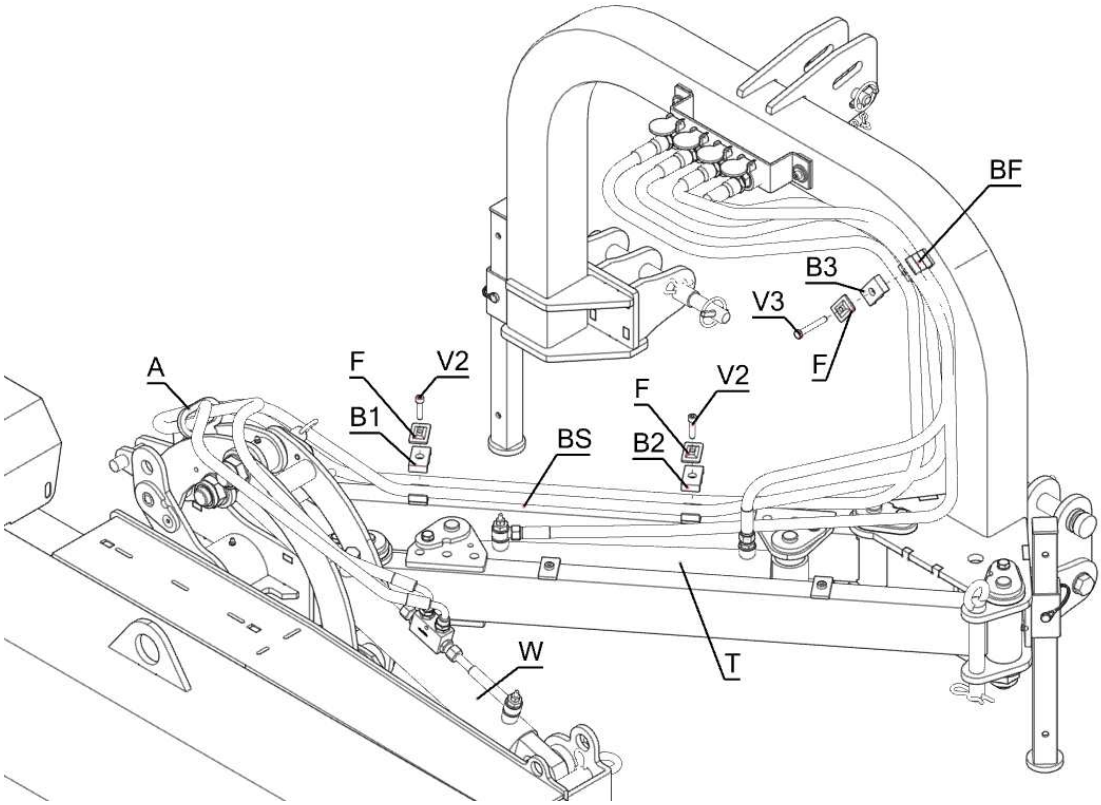
1) Mount the right arm "BD" in the rotation unit "GR" using the pin "P1", the washer "R" and the nut "D". Do not over-tighten it, the arm should rotate freely. Fix the pin in position with its screw "V1" ;



2) Fit the left arm "BS", with the translation cylinder "T", in the rotation unit using the pin "P1", the washer "R" and the nut "D". Do not over-tighten it, the arm should rotate freely. Fix the pin in position with its screw "V1" ;
3) Mount the cylinder rod in the right arm "BD" using the pin "P2", the washer "R" and the nut "D". Do not over-tighten it, the arm should rotate freely. Fix the pin using the screw "V1" ;



4) Mount the hitch "C" on the right and left arms using the two pins "P1", the two washers "R" and the two nuts "D". Do not over-tighten them, the arms should rotate freely. Fix the pins using the screw “V1”

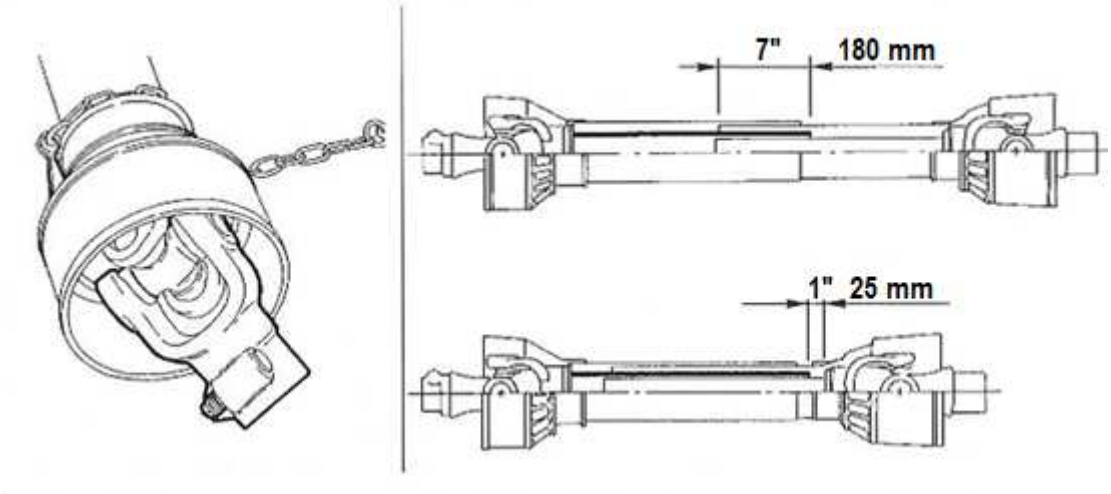


5) Position the hoses as follows:

   a. Pass the hydraulic hose of the rotation cylinder "W" inside the slot "A", then in the block "B1" and in the block "B2". Tighten the hoses in the blocks using the locks "F" and the screws "V2";
   b. Pass the hydraulic hoses of the rotation cylinder "W" and the translation cylinder "T" inside the block "BF" and "B3". Tighten them into position using the lock "F" and the screw "V3".

PTO SHAFT

CHECK THE LENGTH OF THE PTO SHAFT

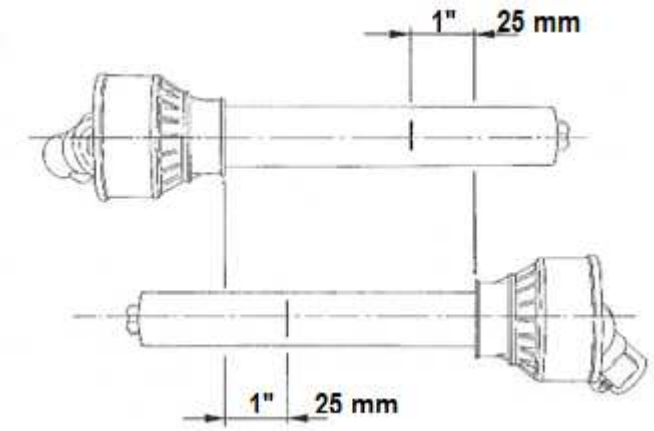


Pic. 2

1. Connect the implement to the 3-point hitch and adjust it so that it is level and centered on the tractor.
2. Insert the PTO shaft between the PTO of the tractor and the implement.
3. Verify that the length of the PTO shaft is correct.
4. To do so, check that the minimum overlap between the inner and outer tube is not less than 180 mm (7 in) in every working position; at the same time, when the shaft is not extended, is should be able to move at least 25 mm (1 in).
5. If the minimum coupling distance is less than 180 mm (7 in), the PTO shaft is short and must be replaced with a longer one.
6. If the PTO shaft is not able to move at least 25 mm (1 in) when is not extended, it is long and must be shortened.

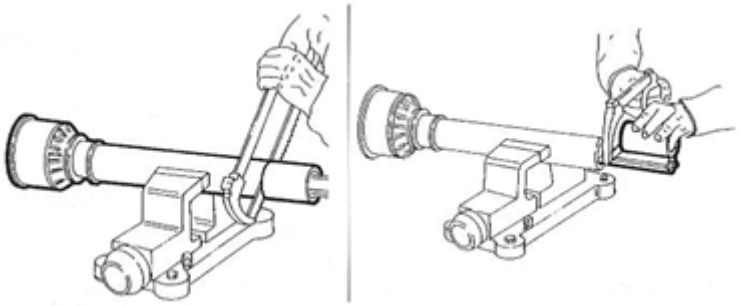
IMPORTANT: shortening the PTO shaft is complicated and must be carried out carefully following the instructions in the next chapter, otherwise the PTO shaft may be damaged.

HOW TO SHORTEN THE PTO SHAFT



Pic. 3

1. Using the hydraulic lift, bring the implement as close as possible to the tractor.
2. In this position, block the lift and turn off the engine.
3. Pull the two parts of the PTO shaft completely apart.
4. Attach the female semi-cardan (tube with larger diameter) into the PTO.
5. Attach the male semi-cardan (tube with smaller diameter) into the implement.
6. With the two parts parallel, use a felt pen to mark the cutting point, as shown in Pic. 3.



Pic. 4

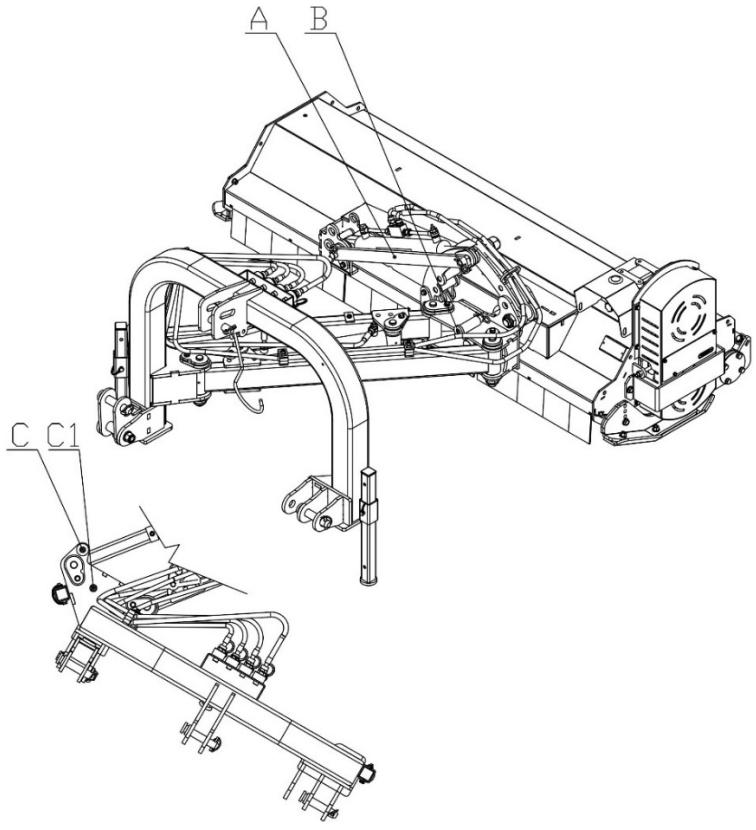
1. Cut the plastic tube of one of the semi cardan with a hacksaw on the cutting line (see 6 above).
2. Align the cut plastic tube with the end of the metal tube and then cut it.
3. Repeat the same operations on the other section of the PTO shaft.
4. Use a file to smooth down the edges of the metal tubes.
5. Clean and grease the two metal tubes and then insert one section into the other.
6. Install the PTO shaft between the tractor and the implement, then verify the length again.

INSTRUCTIONS FOR USE

FIRST START

Unpack the implement and place it on a flat and hard surface. Put the implement next to the rear side of the tractor.

- Hook the implement to the tractor as follows:
  1. Remove the safety pins from the two lower connection points of the implement.
  2. Insert the lifting arms of the tractor in the lower pins and then block them with the safety spring pins. Alternatively, if the lifting arms of the tractor are equipped with quick coupling, mount the ball joints on the lower pins, lock the pins with the safety spring pins then activate the lifter to hook the implement.
  3. Connect the top link of the tractor to the upper link of the implement with the tie rod, insert the pin and lock with safety pin.
  4. Connect the 4 hydraulic tubes to the quick coupling system of the tractor.
  5. Remove the two shear pins and then remove the lock bar “A”.
  6. Make sure that the rotation lock pin “B” is positioned as shown in fig. 5. After removing the shear pin, remove the translation lock pin “C” and place it in the housing “C1”.
  7. Connect the PTO shaft to the tractor PTO and the implement gear box. Check that the chains of the PTO cover are attached to the tractor to prevent from rotating.
  8. Start the engine of the tractor, rise the implement, start the tractor PTO then side-shift and rotate the implement repeatedly to eliminate air from the hydraulic system.



Pic. 5

According to the needs of the customer, it is possible to adjust the speed of the hydraulic cylinder of both the side-shifting and rotating system.

Operate with the regulator mounted on the connection between the hydraulic tube and the bottom plate of each cylinder.

After eliminating the air from the hydraulic system, rotate the implement upwards and downwards. If you need to adjust the speed of the movement, after unscrewing the locking nut “D”, rotate the screw “V” clockwise to decrease or anticlockwise to increase the speed. Repeat the procedure until reaching the desired speed, then block the screw “V” tightening the blocking nut “D”.

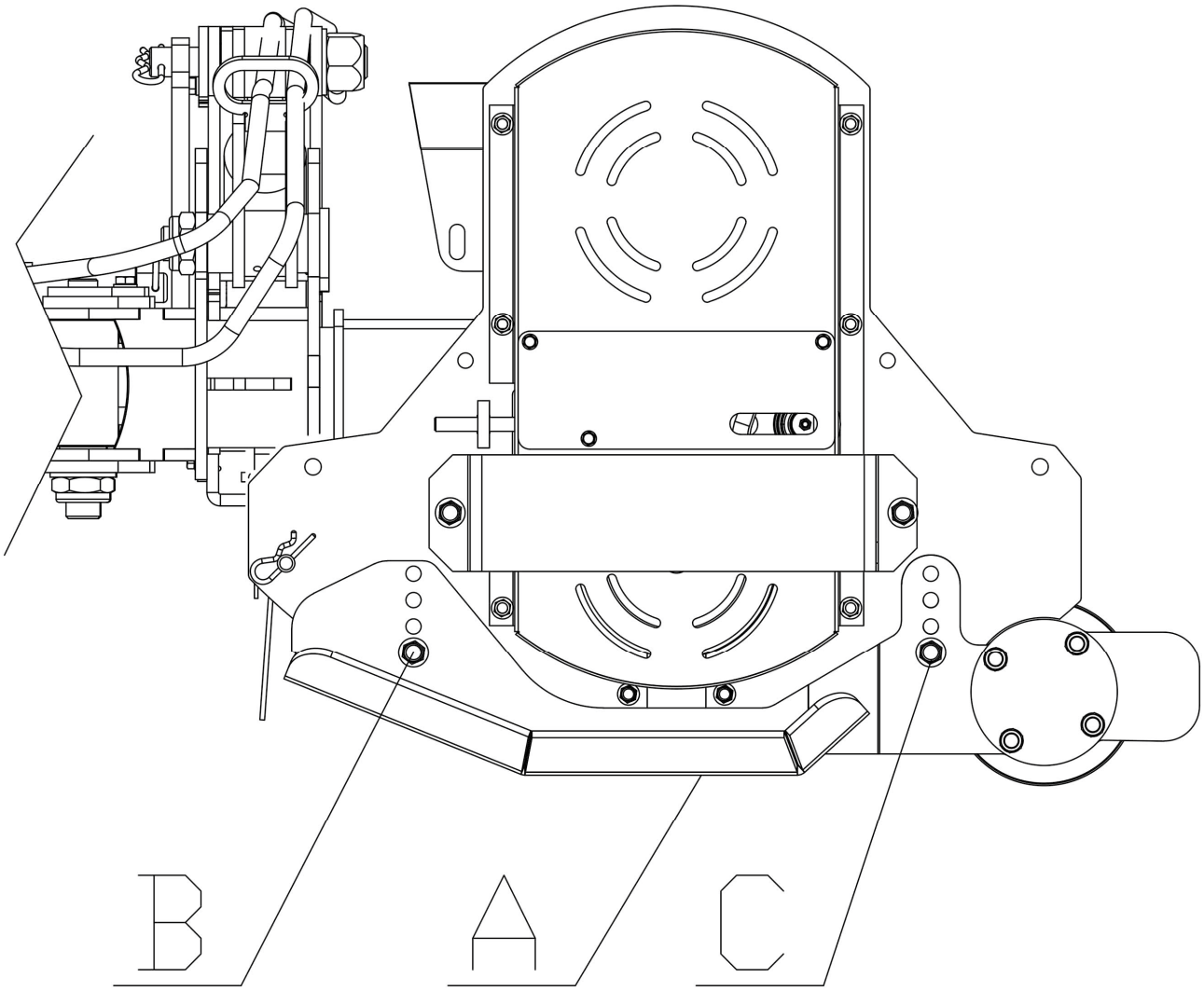
Repeat the same procedure to regulate the speed of the side-shift cylinder.

Pic. 6

BEFORE STARTING TO WORK

- Adjust the skids as follows:

  1. Unscrew the 2 screws “B” and “C” and remove them from their housing.
  2. Choose one of the four possible positions for skid “A”, moving it downwards or upwards.
  3. Reposition the screw “B” and “C” and tighten them.
  4. Repeat the same operations on the other side of the implement, making sure that the two skids are adjusted in the same position.

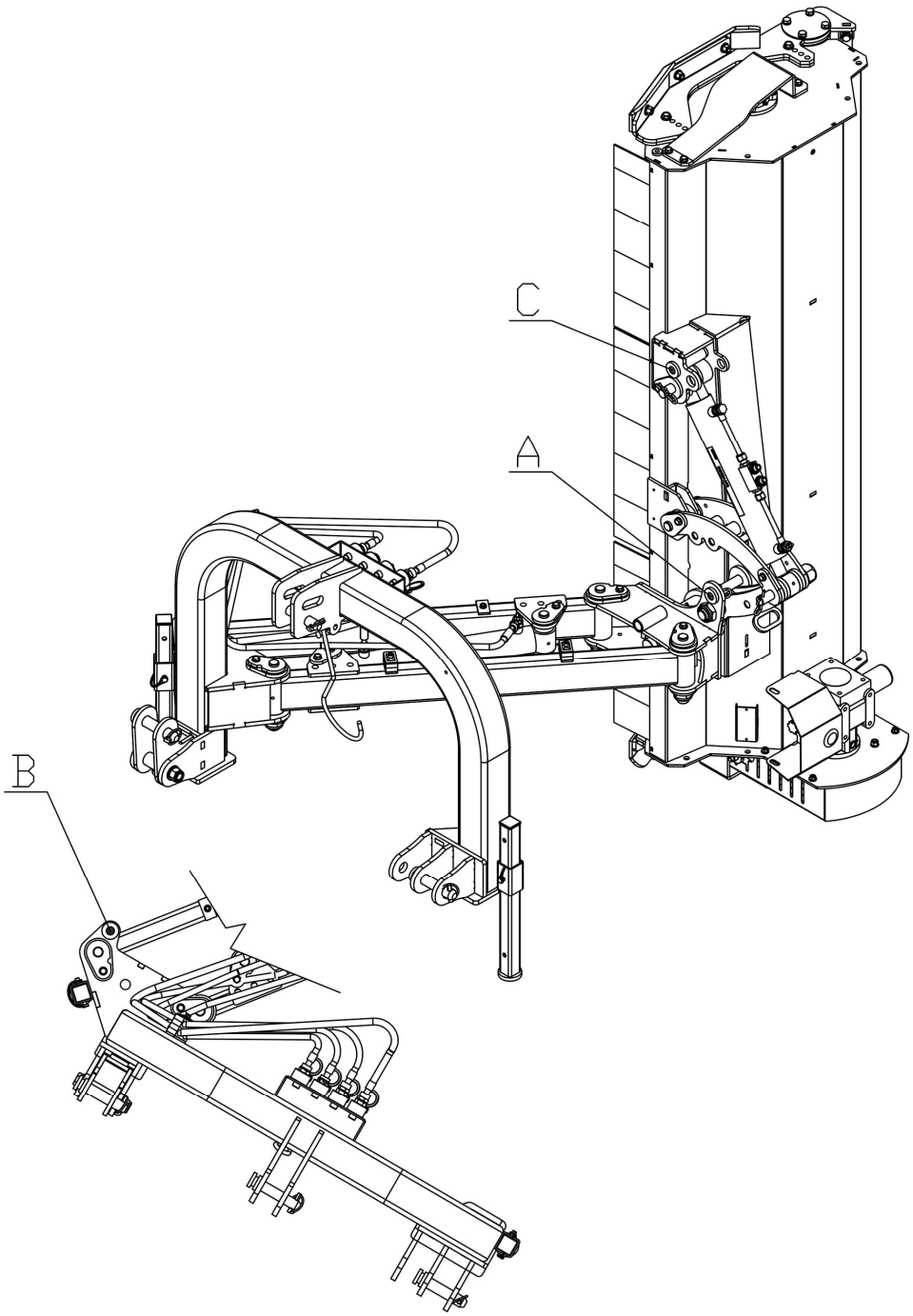


Pic. 7

MOVING AROUND THE WORKING AREA

- After hitching the implement to the tractor, set it up for transportation as follows:

1. Rotate the implement to the vertical position and shift it towards the center of the tractor.
2. Position the rotation blocking pin “A” as shown in the picture then block it with the safety pin.
3. Position the side-shift blocking pin “B” as shown in the picture then block it the safety pin.
4. Make sure the piston lock pin “C” is positioned and locked as shown.
5. Proceed to the working area at a moderate speed with the implement fully rised.

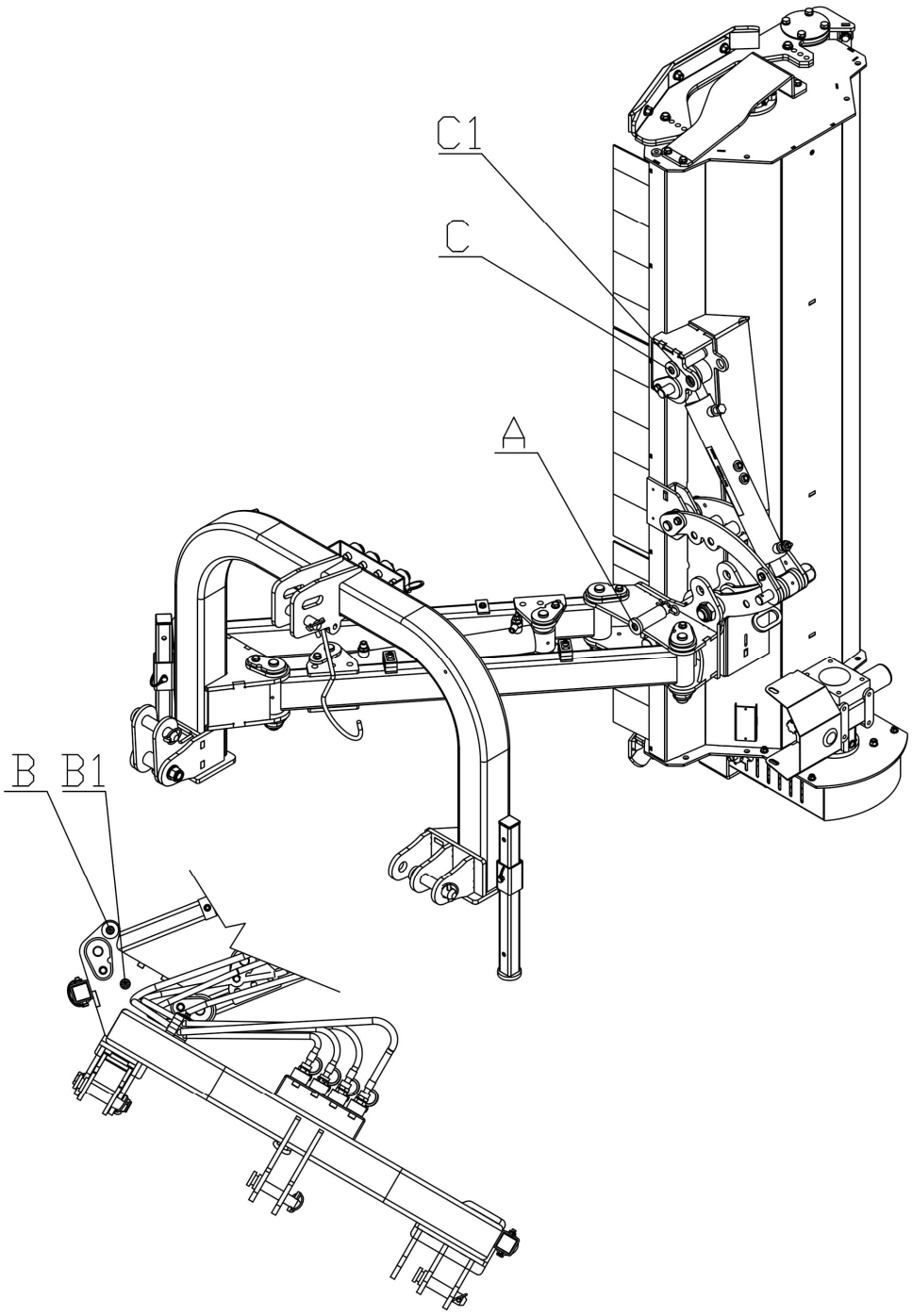


Pic. 8

START WORKING

- Set up the implement as follows:

1. Remove the rotation blocking pin “A”, position it as shown in the picture then block it with the safety pin.
2. Remove the side-shift blocking pin “B”, position it in the corresponding slot “B1”, then block it with the safety pin.
3. If you want the implement automatically adapt itself to the diagonal undulations of the soil, remove the pin “C” and insert it in the slot “C1”.
4. Make sure that there is no one within a radius of 50 meters (164 ft) around the implement.
5. Insert the PTO and gradually reach the intended rotation regime.
6. Lower the implement until the rear roller touches the soil.
7. Start working.



Pic. 9

AT THE END OF THE WORK

- Stop the tractor and the PTO shaft. Wait for at least 30 seconds until the rotor has completely stopped.
- Lift the implement up.
- Disconnect the PTO.
- Disconnect the PTO shaft from the PTO of the tractor.
- Lift the implement fully.
- Set up the implement for transportation (see chapter “MOVING AROUND THE WORKING AREA”).

MAINTENANCE INSTRUCTIONS

Maintenance operations and their corresponding intervals are listed in sheet “A”.

Not following the schedule maintenance intervals jeopardizes the proper functioning of the implement, thus voiding the guarantee.

SHEET “A” SCHEDULED MAINTENANCE

	FIRST USE	AFTER 10 H.	EVERY 30 H.	EVERY 500 H.	END OF THE SEASON	BEGINNING OF WORK	END OF WORK
IMPLEMENT	**Greasing**		**Greasing**		**Cleaning Greasing**		**Cleaning**
GEARBOX	**Oil level**	**Topping**	**Oil level**	**Oil change**			
SCREWS		**Tightening**	**Tightening**				
TOOLS			**Check**		**Check**	**Check**	**Check**
BELTS		**Check tension**		**Replacement**			

NOTE: transmission belts will stretch during the first hour of operation.

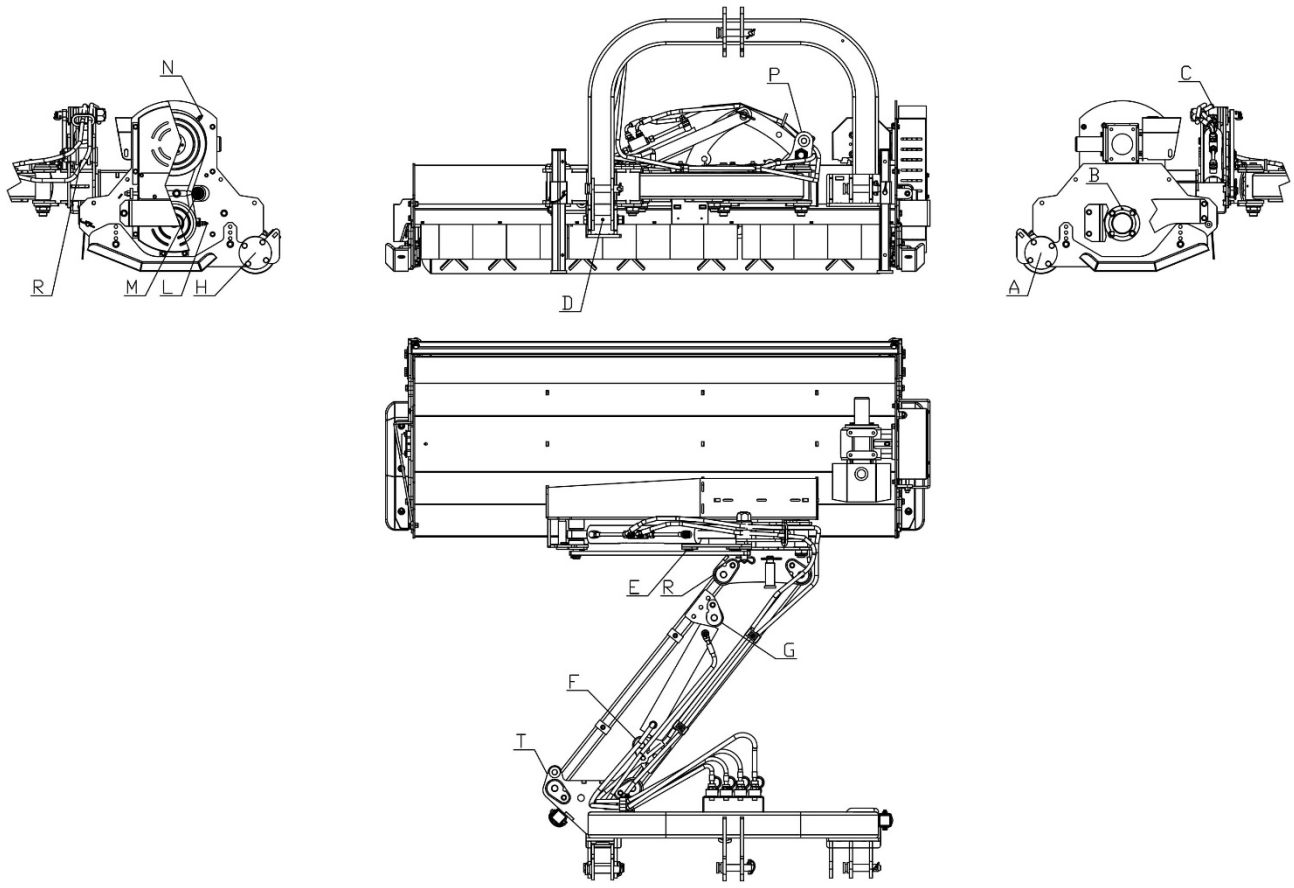
After the first use, the belts tension must be checked and adjusted according to the instructions in paragraph 4 to prevent the belts from wearing out prematurely due to excessive slipping.

1. GREASING

Grease the 17 points from “A” to “U” as indicated in the sheet “A”.

Greasing points are equipped with a HYDRAULIC GREASER MODEL “A” UNI 7663.

Use only MULTIFUNCTIONAL LITHIUM-BASED OIL TYPE NLGI 2.



Pic. 10

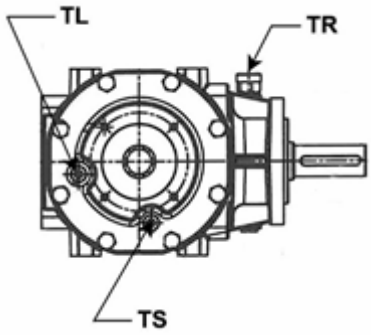
List of greasers:

“A”: right roller support n°1
“B”: right rotor support n°1
“C”: rotation cylinder stem bush n°1
“D”: connecting rod bush n°1
“E”: external rotation connecting rod bushing n°1
“F”: translation cylinder stem bush n°1
“G”: translation cylinder bottom bush n°1
“H”: roller left support n°1
“L”: rotor left support n°1
“M”: tensioner roller n°1
“N”: left upper support n°1
“P”: inner rotation connecting rod bushing n°1
“R”: rotation bushing n°1
“S”: translation connecting rods inner bushing n°2
“T”: translation connecting rods external bushing n°2

2. OIL LEVEL - OIL CHANGE

Check the oil level in the gearbox or replace it as indicated in sheet “A”.
To top up the oil, use only SAE 90 oil.
Gearbox capacity: 1,5 L.

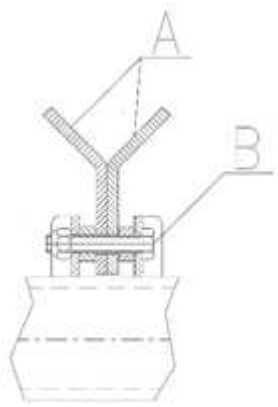
- To check the oil level in the gearbox, proceed as follows:
  1. The implement must be on a flat surface. After removing the plastic protection on the front of the gearbox, unscrew the cap “TL” and check that the oil level is just below the edge of the hole.
  2. If the level is OK, tighten the cap “TL” carefully.
  3. If the level is low, unscrew the cap “TR” and top it up.
  4. Upon completion tighten the caps “TL” and “TR” carefully and replace the plastic protection.
- To replace the oil in the gearbox, proceed as follows:
  1. Remove the protection on the front of the gearbox, unscrew the caps “TL”, “TR” and the drain cap “TS”. Wait until all the oil is out.
  2. Replace the drain cap “TS” and add the new oil through the hole of cap “TR”.
  3. Upon completion tighten the caps “TL” and “TR” carefully and replace the plastic protection.



Pic. 11

3. BLADE REPLACEMENT

- To replace the blades, proceed as follows:
  1. Unscrew the nut and remove the bolt “C”.
  2. Remove the tools “A” with the corresponding spacers.
  3. **CAUTION**: if the implement is equipped with hammers, there are no spacers.
  4. Place the new tool.
  5. Insert the screw “B” and tighten the nut.
  6. **CAUTION**: all tools must be of the same type.
  7. **CAUTION**: if you change the type of blade, the rotor must be rebalanced.

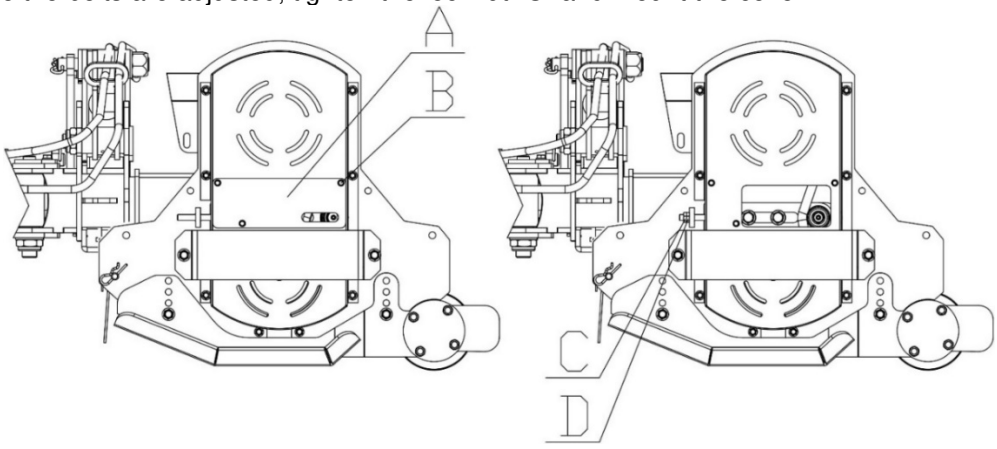


Pic. 12

4. ADJUSTMENT AND REPLACEMENT OF THE TRANSMISSION BELTS

- To adjust the tension of the transmission belts, proceed as follows:

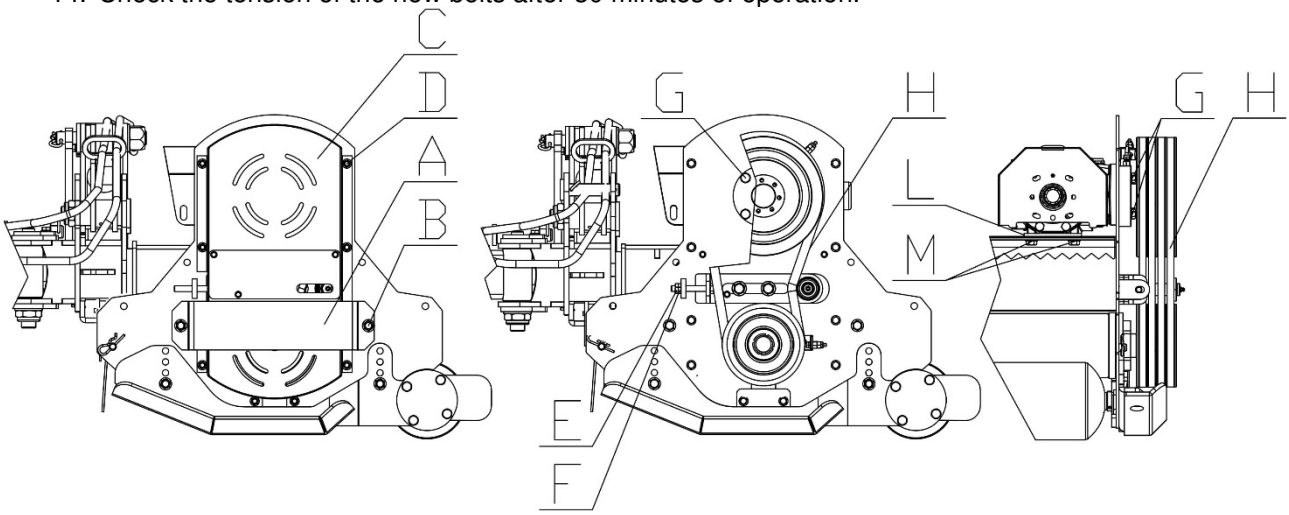
  1. Remove the cover of the tensioner access port “A” unscrewing the 3 screws “B”.
  2. Unscrew the locknut “C” and tighten the screw “D” to stretch the belts or loosen it to loosen them. The belt tension is correct when the belts flex about 1/8” - 1/4" when pushing them on the side opposite of the belt tensioner.
  3. Once the belts are adjusted, tighten the locknut “C” and mount the cover “A”.



Pic. 13

- the transmission belts, proceed as follows:

  1. Disassemble the guard "A" by unscrewing the two screws "B".
  2. Disassemble the crankcase "C" by unscrewing the eight screws "D".
  3. Unscrew the lock nut "E" and completely unscrew the nut "F".
  4. Loosen without removing the four screws "G" located behind the upper pulley
  5. Unscrew and remove the four "L" screws that secure the gearbox to the frame.
  6. Pull the plate "M" out from under the gearbox and place it on the frame.
  7. Disassemble the worn belts "G".
  8. **WARNING:** to avoid tension problems, the belts must all be replaced with original ones, noting their characteristics in the paragraph "SPARE PARTS LIST".
  9. Fit the new straps.
  10. Lift the gearbox and insert the plate "L", insert and tighten the four screws "M".
  11. Tighten the four screws "G".
  12. Tighten the nut "F" until the optimum tension. The belt tension is correct when the belts flex about 1/8” - 1/4" when pushing them on the side opposite of the belt tensioner.
  13. Once the adjustment has been made, retighten the lock nut "E", reassemble the casing "C" and the guard "A".
  14. Check the tension of the new belts after 30 minutes of operation.

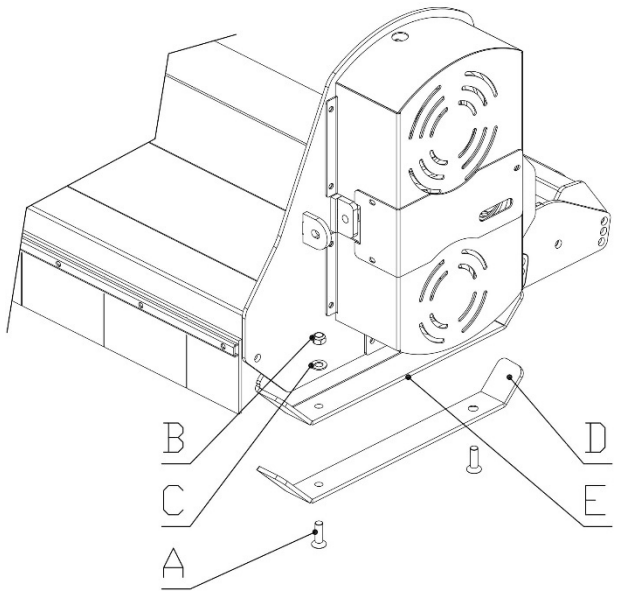


Pic. 14

5. MOUNTING THE ADDITIONAL STEEL SKIDS

- To assemble the additional steel skids, proceed as follows:

  1. Place the additional skid “D” near the slide “E”.
  2. Insert the 2 screws “A” in the holes.
  3. Tighten screw “A” with nut “B” and washer “C”.
  4. Repeat again the same operation on the other side of the implement.



Pic. 15

TROUBLESHOOTING

MALFUNCTIONS	CAUSE	SOLUTION
Abnormal vibrations	1) Unbalanced rotor. 2) Loss of one or more tools. 3) Worn out bearings.	1) Contact the dealer. 2) Replace missing tools. 3) Replace worn out bearings.
Irregular or unsatisfactory cutting	1) Worn out tools. 2) Incorrect choice of tools.	1) Replace worn out tools. 2) Replace them with another type.

VARIOUS INFORMATION

TRANSPORT

Outside its normal field of use, the implement must be moved with the PTO disengaged.

IMPORTANT: proceed at moderate speed avoiding holes and rough surfaces.

NOTE: on the road, abide by the traffic laws. Attach labels to the rear side of the implement indicating the contour of the implement. Abide by all local regulations.

CAUTION: secure the lifting bars of the tractor with chains and parallel tensioners to prevent the bars from moving side to side.

DEPOSIT

Store the implement in a dry and not dusty place.

INFORMATION ABOUT DEMOLITION

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

WARRANTY

The implement is covered by the manufacturer warranty for 24 months.

The warranty is void if:

a) The implement has not been regularly maintained.

b) The implement has been used outside its field of use.

c) The implement has been modified without the prior written permission of the manufacturer.

WORK AND MAINTENANCE SHEET

Every user should register the facts about the history of the implement (both operation and maintenance) on this sheet, to verify its conditions.

DATE	HOURS OF OPERATION	MAINTENANCE	NOTES	OPERATOR