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# BRM



## Hedge Bush Cutter Machine

### Instructions for use and maintenance

The following instructions must be read carefully prior to using the machine.



In accordance with article 2006/42/CE  
and subsequent modifications

|        |  |
|--------|--|
| SERIAL |  |
|--------|--|

In regards to safety and reliability this machine was designed in accordance with the provisions and subsequent revisions set out in the EEC “machines article”.

The manufacturer therefore cannot be held responsible for machine use where modifications have been made without prior manufacturer’s consent, replacement parts used are not those stated by the manufacturer and use by untrained persons.

For safety issues not covered in this text please refer to general standards concerning the prevention of accidents.

Below is a list of definitions, descriptions and abbreviated terms most frequently used in the text.

Mass. = weight of object or machine

|        |                             |
|--------|-----------------------------|
| A.P.   | high pressure               |
| B.P.   | low pressure                |
| min.   | Minimum                     |
| max.   | Maximum                     |
| l'     | minutes                     |
| h      | hours                       |
| L      | width                       |
| P      | depth (length)              |
| H      | height                      |
| Fig.   | figure                      |
| Pag.   | page                        |
| Autom. | Automatic                   |
| Man.   | Manual                      |
| Rif.   | Reference                   |
| Hp     | Horsepower                  |
| °C     | centigrade                  |
| kg.    | kilograms                   |
| m.     | meters                      |
| cm.    | centimeters                 |
| mm.    | millimeters                 |
| CEE    | European Economic Community |



## **EC DECLARATION OF CONFORMITY**

**As stated by the EC directive 2006/42/CE and subsequent modifications**

The undersigned

RINIERI S.r.l. - Forlì – Italia - Viale dell' Appennino 606 B

Declares under its responsibility that the machine:

**Hedge Bush cutter machine ...**

**Model**

**Code no.**

**Serial no.**

Is in accordance with essential health and safety requirements of the **machinery directive 2006/42/CE** and its subsequent modifications.

For the verification of conformity to the directive mentioned above, the following directives were respected:

**UNI EN ISO 12100:2010**

Safety of machinery - General principles for design - Risk assessment and risk reduction

**UNI EN ISO 4254-1:2015**

Agricultural machinery – Safety – Part 1: General requirements

**UNI EN ISO 4254-12:2018**

Agricultural machinery - Safety - Part 12: Rotary disc and drum mowers and flail mowers

Person authorized to compile the technical file  
Mr. Carlo Rinieri

Forlì,

Signature -----

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# ATTENTION

**THE PURPOSE OF THIS TEXT IS TO INTRODUCE YOU TO THE BASIC STANDARDS AND CRITERIA YOU HAVE TO FOLLOW IN ORDER TO USE AND MAINTAIN THIS MACHINE AND THUS IT HAS TO BE READ BEFORE USING THE MACHINE.**



This manual has to be considered as an integral part of the machine and must be passed on with the machine if resold. If you lose it or if it is not readable, it is important that you ask for a new copy to the producer, to the dealer or to the importer.

If you think that some themes are not very good illustrated, return to the producer, the dealer or the importer to have the needed informations.

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# INTRODUCTION

## Dear Customer,

The purpose of this text is to introduce you to the basic standards and criteria you have to follow in order to use and maintain this machine and thus it must be read before using the machine.

If any part of this publication is not understandable, please consult your retailer, as this is a necessary precondition to using this machine safely.

Your safety depends on your careful and rational observation of the standards laid out in the text as well as the proper functioning and durability of your machine.

**This manual must be considered as an integral part of the machine and must be passed on with the machine if resold.**

This publication contains all the general specifications needed to have a working knowledge of the machine without regards to specific types, models and the numerous characteristic modes and settings.

## GENERAL INFORMATION

### INSTRUCTION MANUAL

Verify that this manual is in good condition and all pages are readable.

If damaged or missing pages on receipt, please return to the retailer who will provide a replacement copy.

### PRESERVATION AND CARE OF MANUAL

This manual must be kept for the entire life of the machine.

If lost or destroyed please ask the manufacturer for another copy quoting the type of machine, serial number and year of production.

### IN HOUSE TESTING

The machine has been tested on the manufacturer's premises to verify that all components function correctly according to standards laid out by the standards in force.

### DELIVERY

Responsibility for goods in travel lie solely with the transporter and recipient.

In cases of delayed delivery or accident and the manufacturer cannot be held responsible.

Transportation of goods has to be carried out by suitable companies who comply to regulations in force and legislation concerning weights and bulks.

### INSPECTION

On receiving the machine, check the condition.

Should you come across any damages do not install the machine, instead inform the supplier and transporter immediately.

Make sure the machine is in good condition.

Check you have all components, the overall condition of the machine is good and there are no breakage or dents.

In cases of damages or missing components, inform the retailer immediately after taking legal proceedings against the transporter, if necessary.

### PACKAGING

Packaging material and maintenance waste must be disposed of separately at authorized depots and not left in reach of children or animals or to litter the environment.

### MACHINE DETAILS

An exact model description, identification code, serial number and any installed accessories will help the manufacturer or call center deal with any enquiries quickly and efficiently.

Always refer to the machine model and production dates every time you contact the call center, retailer or manufacturer.

For quick reference fill in your machine details in the box below

|        |  |                     |  |
|--------|--|---------------------|--|
| MODEL: |  | SERIAL NUMBER:      |  |
| CODE:  |  | YEAR OF PRODUCTION: |  |

## RECOMMENDATIONS

Before use please read the instructions carefully, in particular the RECOMMENDATIONS, SAFETY REGULATIONS and PRECAUTIONS.

We remind you that some machines mechanical parts have linear or rotatory movement and can cause serious damage or injury to people, animals and things.

It is forbidden to remove or tamper with the safeguards of the machine.

It is obligatory to wear the correct protective clothing and safety equipment.

It is necessary to keep the machine clean and in working order especially the nameplates, couplings and controls.

For the safety of you and others and the proper functioning of the machine don't use the machine for uses other than those specified or intended by the manufacturer.

Before using the machine make sure that any dangers to your safety or others have been removed. Pay attention to the type of oil of used in cases where the equipment is used with different types of tractors.

## VERY IMPORTANT

**For all operations use proper working clothes and/or suitable safety apparel like glasses, shoes, gloves, and working cloth in accordance with the safety standards in force in the working area.**

**The working area must be kept completely clear, so pay the utmost attention that there aren't any people or animals in the immediate area.**

**Nobody else apart from the operator must be within the working zone other than collaborators which for safety should be no less than 10 mtrs.**

**Maintenance of the equipment must be carried out by only one operator with the machine off and tractor at a standstill (off) with the ignition key removed.**

## DESCRIPTION OF THE MACHINE

The BRM hedge bush cutter can work with tractor of at least 15-30 hp.

It is applicable to three point hoister of ordinary tractor, to front three point hoister.

**Due to its vast lateral extension, the tractor must weigh at least 500-600 Kg.**

The machine comes with the three point hoister (Fig.1), lower arm (Fig.2) with relative hydraulic cylinder with block valve, hydraulic cylinder with turning valve (Fig.3) that spin the arm for working at the left side for the model 150 and 200, with block valve for model 120, upper arm for shifting (Fig.4), support with rods that spin the cutting bar (Fig.5), with relative hydraulic cylinder (Fig.6), remote control with cables for shifting control and cutting start (Fig.7) for the model 150 and 200, hydraulic distributor with tubes linked to the tractor to lever for model 120.

The standard machine is equipped with a **mono blade** cutting bar of 120, 150 or 200 cm length (Fig.8), that can cut bush or branches up to 2-3 cm. of diameter, it is adjusted so that the maximum oil capacity of the tractor of Lt/min. 15 with cm<sup>3</sup> 50 motor for the 120 model, Lt/min. 25 with cm<sup>3</sup> 100 motor for the 150 and 200 models.

The optimal rotation speed is estimated at around 200 rpm.

On request, the machine can be equipped with a electro-hydraulic control with distributor with tubes linked to the tractor and proportional joystick in place of the remote control with cables or the hydraulic distributor to lever, hydraulic kit if the oil flow of the tractor flow is not sufficient, radiator, pair of stabilizer bars, electronic systems with auto-alignment to the ground of the cutting bar, L.4000 mm. cables for remote control in place of the L.2500 mm. cables.

Furthermore, it is possible to replace the single blade cutting bar:

- cm. 120, 150 or 210 **double blades** cutting bar, that can cut bush or branches up to 2-3 cm., it is adjusted so that the recommended oil capacity of the tractor of Lt/min. 15 with cm<sup>3</sup> 32 motor end max pressure of bar 120, maximum oil capacity of the tractor of Lt/min. 18.

The optimal rotation speed is estimated at around 150 rpm., Maximum of 200 rpm.

- cm. 100 **swing away blades** cutting bar, to 3+3 blades, 140, to 4+4 blades, or 200, to 6+6 blades, that can cut bush or branches up to 1-1,5 cm., it is adjusted so that the recommended oil capacity of the tractor of Lt/min. 20 with cm<sup>3</sup> 11,2 and max pressure of bar 120, maximum oil capacity of the tractor of Lt/min. 25.

The optimal rotation speed is estimated at around 2000 rpm.

- cm. 100 **disc saws** cutting bar, to 3 saws, to cm. 140, a 4 saws, that can cut bush or branches up to 4 cm., it is adjusted so that the recommended oil capacity of the tractor of Lt/min. 45 with cm<sup>3</sup> 25 and max pressure of bar 150, maximum oil capacity of the tractor of Lt/min. 56.

The optimal rotation speed is estimated at around 2800 rpm.

On request, it is also possible to have a cm. 100 **swing away blades** cutting bar, to 3+3 blades, or 140, to 4+4 blades, replacing the discs with the piece of sheet with 2 knives, thickness 4 mm. of overall diameter 375 mm., that can cut bush or branches up to 2-3 cm.

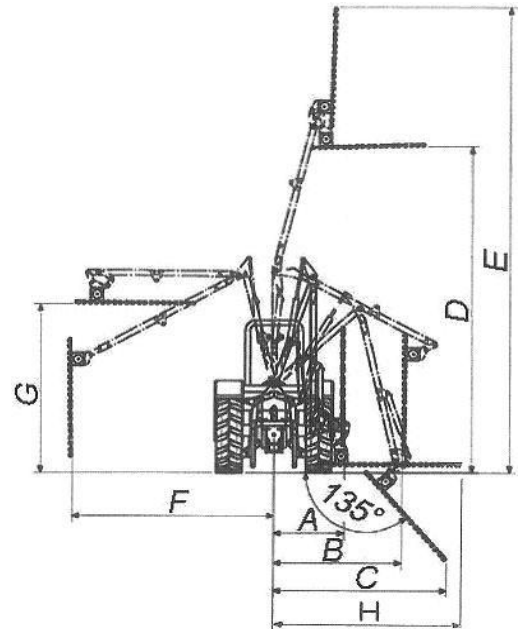




| Code   | Model          | Tool cm.       | Weight kg. | Recommended tractor flow | Motor cm <sup>3</sup> | Max bar pressure | HP    | Tractor Weight kg. |
|--------|----------------|----------------|------------|--------------------------|-----------------------|------------------|-------|--------------------|
| 6BRM12 | <b>BRM 120</b> | Bar Mono Blade | 185        | 12 litres/minute         | 50                    | 120              | 15-20 | 500                |
| 6BRM15 | <b>BRM 150</b> | Bar Mono Blade | 225        | 20 litres/minute         | 100                   | 120              | 20-30 | 600                |
| 6BRM20 | <b>BRM 200</b> | Bar Mono Blade | 235        | 20 litres/minute         | 100                   | 120              | 20-30 | 600                |

The cutting head of the BRM, with 3 point attachment lower than 40 cm., has a big range of movements and angles which are hydraulic controlled and that you can find in the schedule here.

| Model              | 120    | 150    | 200    |
|--------------------|--------|--------|--------|
| Code               | 6BRM12 | 6BRM15 | 6BRM20 |
| A cm.              | 100    | 110    | 110    |
| B cm.              | 140    | 150    | 150    |
| C cm.              | 170    | 210    | 240    |
| D cm.              | 260    | 380    | 380    |
| E cm.              | 410    | 550    | 600    |
| F cm.              | -      | 240    | 240    |
| G cm.              | -      | 190    | 190    |
| H mm.              | 205    | 245    | 295    |
| Tubes / Cables cm. | 200    | 250    | 250    |



## USING

The “BRM” hedge bush cutter is used for vegetation maintenance, clearing and pruning branches with diameters up from 1 to 4 cm.

It is suitable for clearing ditches, roadsides, embankments, and orchards.

## PRE-OPERATION

Our “BRM” hedge bush cutter are fully greased and tested after assembly by having them revolve at full speed.

Ensure that the hydraulic hoses, the remote control and the cutting bar were not damaged during transportation, and remove any packaging material that may have remained wound around them.

Apply the machine to the tractor using appropriate-sized pins (Fig.7 and 10 Table 1 or Fig.28 and 4 Table 1) and, if necessary, use the adaptor bushings.

The tractor should have a separate clutch for the power takeoff and must be heavy enough to counterbalance the arm when it is fully extended horizontally so that the front tires do not lose their grip.

To verify the tractor’s stability, carefully extend the arm repeatedly at full length keeping the cutting portion as close as possible to the ground.

Connect the hydraulic hoses to the tractor distributor.

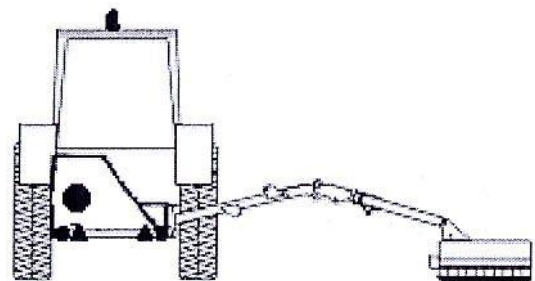
The machine need only one lever of the distributor.

Adjust the oscillation of the lateral arms of the three-point linkage of the machine by means of the relative tie-rods.

If the machine is equipped with an independent hydraulic system, mount an adequately powered cardan shaft, find the position in which it is most shortened and making sure it can still be shortened an extra 5 cm.

For settings and movements of the equipment in models with hydraulic controls, position and fix the controller unit with lever and the cables or the distributor in the tractor cabin, in a place that can be reached easily from the driver’s seat; for models with electro-hydraulic controls position and fix the joystick, connect the 12 volt power supply and, if present, the plug coming from the machine.

When finished working fix on the machine the controllers only after disconnecting the electric power supply in the case of the electro-hydraulic models.



**CAUTION:** When the machine is disconnected from the tractor, the joystick can be unhooked and put on the machine or left on the tractor by releasing only the cable coming from the solenoid valves and placing it on the machine; in this case, **when reconnecting the cable pay attention to the phase of the plug.**

The machine is equipped with movable protections on the cutting bars that protect from coming into contact with pointed or sharp parts like blades or teeth.

These safety devices are extremely important and have to be put in place when the machine is parked (not working), as well as when it is transported to the place in which it will be used.

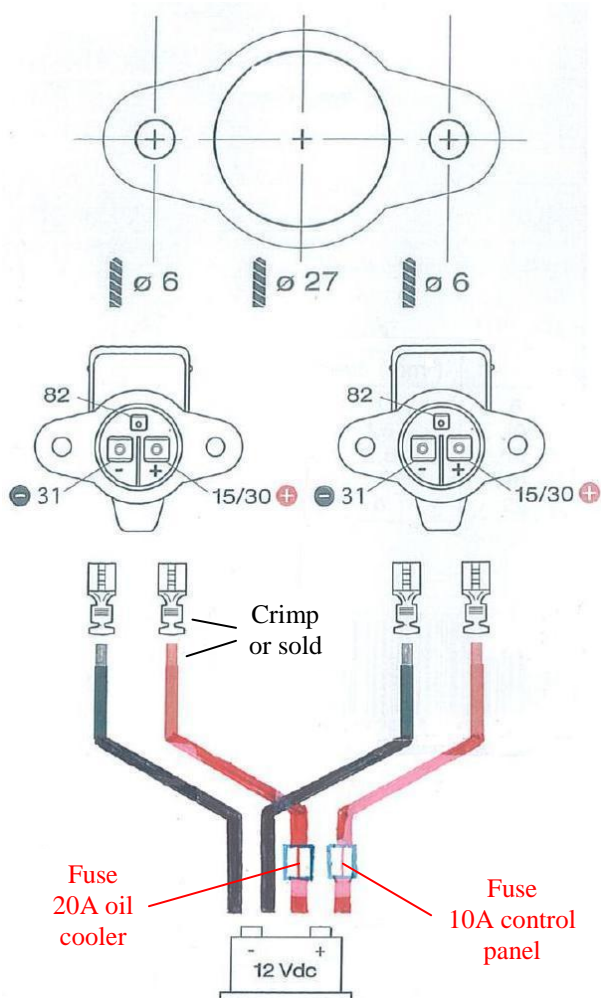
The protections have to be taken off before starting to work, with the machine stopped and with the starting key taken out of the control panel.

If the tractor does not have any **3-pin plug** attachments, adapt its system with the same 3-pin plugs that come with the machine considering the scheme here on the side.

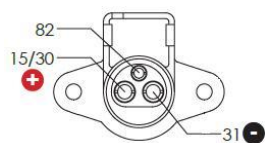
Connect the two 4mm<sup>2</sup> diameter cable groups with max. impedance 18A directly to the 12V battery of the tractor, one group for every 3-pin attachment to add to the existing system.

For every group insert on the red power cable **+** a 20A fuse for the 3-pin plug of the oil cooler and a 10A fuse for the 3-pin plug on the control panel.

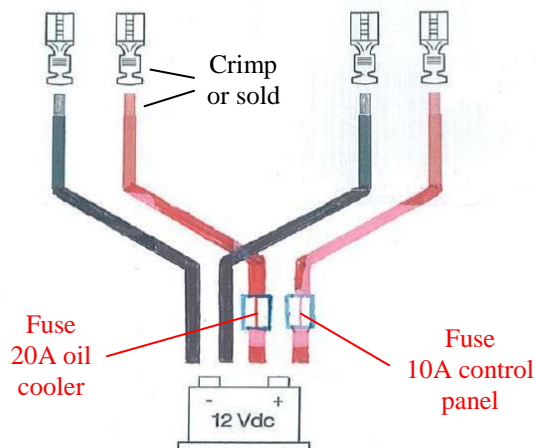
Connect the 3-pin plugs to the tractor using the piercing mask printed on the blister, then connect the cables to the 3-pin plugs paying attention to respecting polarity.



3 pin power plug

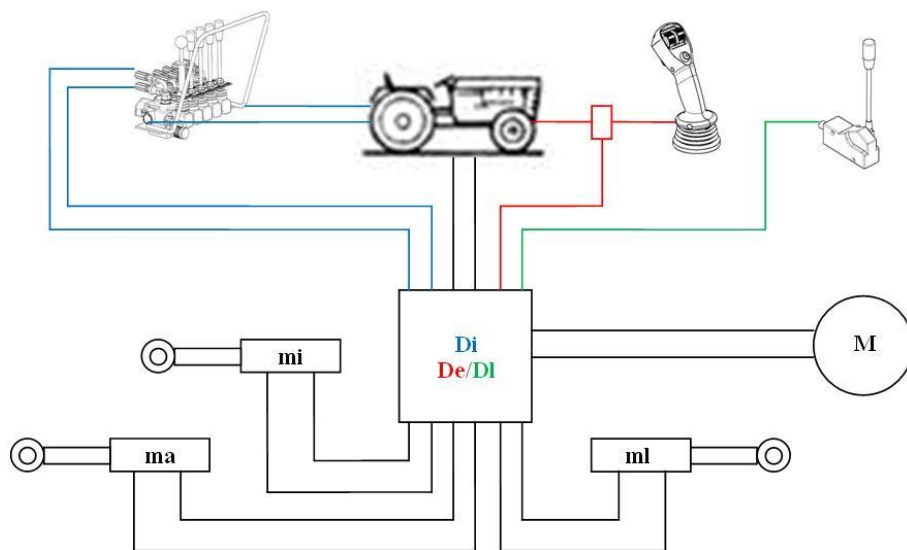


3-pin plug of the oil cooler



For the models with **stabilizer bars** to the tractor, proceed as follows:

- Apply the supplied plate to the top link of the tractor's 3-point hitch. It already has the stabilizer bars fixed to it.
- Apply the tractor's top link to the upper hole in the plate, block it with the supplied bolt and connect it to the machine's upper third point.
- Apply the lower links of the tractor and the free spherical joint of the stabilizer bars to the lower links of the machine that have a double fork as standard.



## CONNECTION AND HYDRAULIC DIAGRAM

**M: motor**

**Di: hydraulic distributor**

**De: electro-hydraulic distributor**

**DI: hydraulic distributor with cables**

**ml: lateral hydraulic cylinder**

**ma: hydraulic cylinder for lifting**

**mi: hydraulic cylinder for tilting**

Connect the pressure hose usually indicated by a red collar on the tube to the tractor's pressure outlet with pressure P max. 160 bar, then connect the return tube to the free (no pressure) return of the tractor; the connection has to be made correctly in order to avoid damaging the hydraulic system.

## IDENTIFICATION DATA

### ATTENTION

**CHECK YOUR MACHINE:** if you don't find an identification tag, ask immediately for it to your retailer.

Machines without identification tag **must not be used**. Our factory does not recognise them, so consider them as anonymous and potentially dangerous.

Identification tag should always be attached on the machine and should be well readable, so, if it deteriorates or if you loose it, please ask the manufacturer or your vendor buy a new one.



### Identification tag of the machine

The identification tags are little plates fixed to the machine frame and it supplies the following information:

|   |              |   |                      |
|---|--------------|---|----------------------|
| A | Manufacturer | 3 | Serial               |
| 1 | Model        | 4 | Bulk                 |
| 2 | Code         | 5 | Year of construction |

## ADHESIVES

The following safety adhesives are placed on the machine for your safety and the safety of others.

Go through the manual taking note of the meaning of every warning or danger sign.

This procedure has to be done together with your fellow operators and anyone using this equipment.

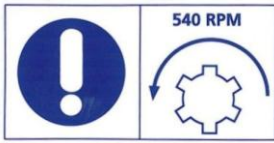
If in the event that one of these adhesives goes missing or becomes illegible you must get an immediate replacement by contacting your retailer, or the manufacturer.



Indicates the equipment's place of origin; built or assembled in a country that belongs to the European Economic Community



**CAUTION**  
Use a maximum speed of 200 turns/min.



**CAUTION**  
The power takeoff must be set to 540 rpm.



**CAUTION**  
Read and refer to the “use and maintenance” instruction manual carefully before using the equipment or performing any kind of work on it.



**CAUTION**  
Danger: machinery may suddenly shift laterally.  
Keep safety distance.



Hook for hoisting and handling the machinery.

| Macchina / Equipment                   | Tipo di lubrificante / Type of lubricant |
|--|--|
| Impianto idraulico<br>Hydraulic system | <b>Mobil DTE 26</b>                      |
| Coppia conica<br>Bevel Gearbox         | <b>Mobilgear 630</b>                     |
| Scatola ingranaggi<br>Gearbox          | <b>Mobilux EP 004</b>                    |

Indicates the different types of lubricant that must be used on the various machinery components.



Indicates the ideal oil level in the hydraulic system's oil reservoir.



Indicates the areas that require grease injections.

**TOGLIERE PRIMA DELL'USO**  
**DISASSEMBLE BEFORE STARTING THE MACHINE**

Indicates that certain components that provide blockage or protection must be removed before operating the machinery.









**CAUTION**  
Danger: rocks or ground particles may be expelled from the machinery while it is in use.  
Keep safety distance.



**CAUTION**  
The machinery contains rotating discs or blades.  
Keep safety distance and wait for the components to stop rotating before performing any work on them.



|   |  |
|---|--|
|    | <p align="center"><b>CAUTION</b></p> <p align="center">The machinery contains rotating discs or blades.<br/>Keep safety distance and wait for the components to stop rotating before performing any work on them.</p>                            |
|    | <p align="center"><b>CAUTION</b></p> <p align="center">The machinery contains rotating discs or blades.<br/>Wait for the components to stop rotating before performing any work on them before intervening to perform checks or maintenance.</p> |
|    | <p align="center"><b>CAUTION</b></p> <p align="center">Suitable safety individual equipment must be worn.</p>  |
|    | <p align="center"><b>CAUTION</b></p> <p align="center">Keep a minimum safety distance of 50m.</p>  |
|  | <p align="center"><b>CAUTION</b></p> <p align="center">Do not stop in the machine's range of action.<br/>Keep safety distance.</p>   |
|  | <p align="center"><b>CAUTION</b></p> <p align="center">Do not stop or transit under the machine's flexible arm.<br/>Danger of being crushed by a sudden movement or equipment collapse.</p>  |

## SAFETY REGULATIONS

The use of this machine is for skilled and specialized persons with appropriate abilities and competence in carrying out operations.

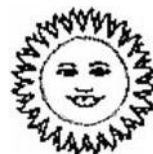
The must have a good knowledge of this manual and are informed in general safety procedures.

Follow with the utmost care and attention instructions for your safety, the safety of others and of environment.

### SYMBOLS TO REMEMBER



**Danger for people**  
**Danger of serious damage to the machine**  
**General danger**



**Protect the environment**



The operator must always stay in the drivers seat and never abandon it when the equipment is on and the engine is on.

The operator must never leave the drivers seat with the aim of making adjustments or other reasons as it could create a dangerous situation.

The operator must always stay in the seat alone and not carry other people animals or things.

The operator must wear appropriate work overalls / clothes and not loose clothing which could get caught in moving parts of the vehicle or equipment causing serious injury.

It's necessary to wear personal protective devices for eyes (face mask, goggles) and protective



headphones for acoustic pressure in places of work it is greater than 85 db.

Don't wear rings, wrist watches, loose articles of clothing or hanging things, torn clothes, shoes, unbuttoned jackets or blouses which can get caught in moving parts. We advise you to use approved articles of clothing for accident prevention for example sturdy gripped boots, safety goggles and face mask, above all if the vehicle is automatic without a cabin.

We advise you to consult the appropriate public authority concerning the acquirement of accident prevention devices and vineyard safety.

The operator must have suitable abilities and psychophysical conditions in order to understand how to apply correctly all the instructions specified in this manual and all the symbols and captions on the machine.

Do not use the machine if you are under the influence of medicines, alcohol, or other substances that could compromise your normal level of attention, perception and reaction.

When on the streets, respect meticulously the provisions in force, in particular as far as lighting, safety devices, maximum dimensions, juts etc are concerned.

Drive very carefully because the equipment limits visibility.

When you have to drive on streets to reach the work place, make sure that the machine is in line with the moving vehicle and that it does not cover possible lighting and signaling systems; if this is not possible, put the machine on a type-tested tow.

Before leaving the driver's seat, disconnect the power source, switch off the engine, take out the ignition key and put on the handbrake.

Do not allow the machine to be used by any operator ignoring the risks and instructions reported in this manual.

Keep the equipment clean and in order.

Do not use any equipment with faulty components.

Additional safeguards have been placed by the manufacturer for the safety of the operator during his work; their removal or tampering is therefore absolutely forbidden; instead, always make sure that safeguards and safety devices are in place and work properly.

For the operator's safety and the equipment's integrity, do not modify anything without the written authorization of the manufacturer.

Make sure that no one is in the working area of the machine when in use, (minimum distance to respect: at least 50 meters), pay much attention to children and animals.

Verify the stability of the machine on a flat while the machine is working.

Do not work on soft ground, on too extreme slopes or that can compromise the machine's stability.

Remove possible obstacles as wood, tree trunks, scraps which could damage the machine and its stability.

Clean your shoes' soles before getting up the machine and using the pedals.

Do not try to take out material with tools or with hands or feet while the machine is working: stop the tractor, switch off the PTO, take off the key and wait some minutes that the machine stops before repairing it.

If you have to stop while working, stop the machine on a flat with operated hand brake and first speed, disconnect the PTO, turn off the motor and take out the key.

Be always sure that every part of the hydraulic kit is well closed.

Do not tamper the security system.

The security of your machine depends on its efficiency, so respect the instructions and the maintenance. on its efficiency, so respect the instructions and the maintenance.

## **IMPROPER USE**

By improper use we mean:

- using the machines for operations they were not designed for or for usages that do not appear in the chapter "Machine's Description and End Use" of this manual;
- use of the machine by people under the age of 18, and/or people not trained to use this kind of equipment.

## **INCORRECT USE**

By incorrect use we mean using the machines without respecting the instructions of the manual.

Not respecting these instructions could risk injury to the operator or third parties, and cause damage to the machine.

Incorrect use can thus mean:

- incorrect installation and/or use of the components or optional accessories.
- incorrect preparation of the machine.
- not using the manufacturer's spare parts.
- repairs by non-authorized people.
- maintenance by non-qualified people.
- uses the machine is not designed for (see above), lack of maintenance.

**WARNING: the manufacturer cannot be held responsible for any injury to people, animals or damages to things resulting from improper or irresponsible use, as mentioned above.**

## METHOD OF USE

### Users

Users are divided into two categories:

- OPERATOR: a person without technical knowledge but trained to use the machine and carry out simple maintenance and adjustments.
- QUALIFIED TECHNICIAN: a person who works on behalf of the manufacturer and/or retailer and can carry out complex maintenance and repairs.

### Indications before using

Before starting the machine, you should read this manual carefully.

Check that everything has been installed and checked by a qualified technician.

Send away everybody from the working area before starting work, than proceed slowly checking your machine.

Make sure there are no people standing in the vicinity of the machine, then remove the safety protections from the cutting head.

Turn on the oil from the tractor at a low running speed of the motor of the tractor.

Check with the remote control that every movements work good.

Turn on the motor of the cutting bar and speed up at maximum of 150-300 rpm.

A running speed faster makes too many vibration and wear out fast the blade.

If the machine has the independent hydraulic kit turn on the pto at a low running speed of the engine of the tractor and always use that at 540 rpm mode.

Remember always that every turn on and turn off of the cutting blade has to be done at the a low running speed of the engine of the tractor from the remote control of the BRM.

Keep in mind that the speed of advancement must decrease in relation to the amount of material being cut: the larger the quantity, the slower the speed.

## CONTROLS

### Independent hydraulic kit with distributor with levers

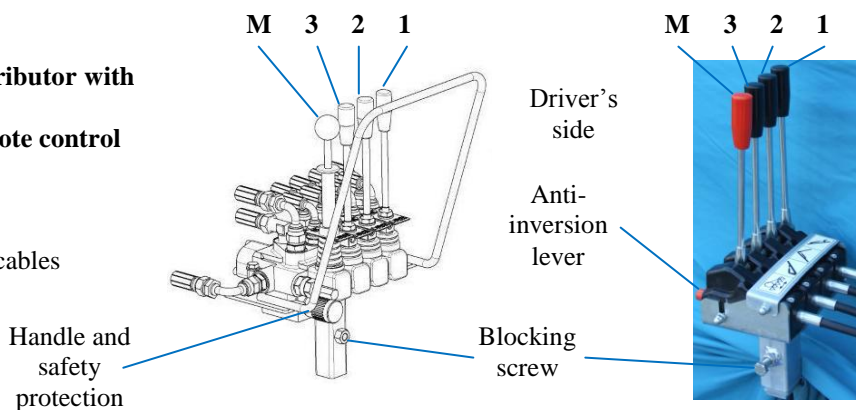
### Independent hydraulic kit with remote control with levers and cables

Example:

Controller group with 3+1 levers

Controller group with 3+1 levers and cables

- 1) Side: Right/Left
- 2) Lifting: Up/Down
- 3) Tilting: +/-
- M) Motors: On/Off



Using its screw fix the hydraulic distributor with levers or the remote control with levers and cables next to the driver's seat in a way that allows comfortable usage when machine parts are moved.

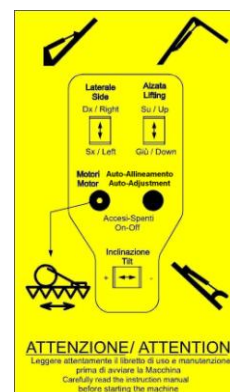
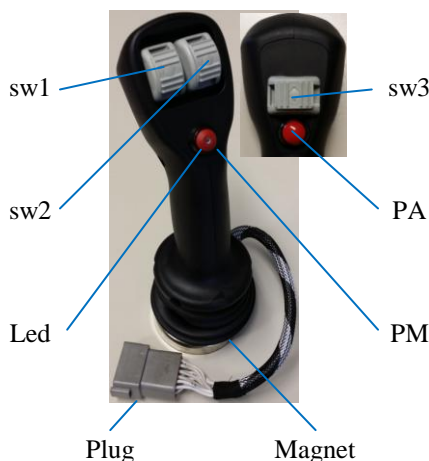
All the machine's movements are illustrated with pictograms on the labels of all levers or on the table next to the lever support, in order to be consulted in case of necessity.

### Independent electro-hydraulic kit with proportional Joystick

### Independent electro-hydraulic kit with proportional Joystick and electronic auto-levelling system.

The machine is equipped with a joystick with 3 movements + 1 or 2 switches and cable L.3000.

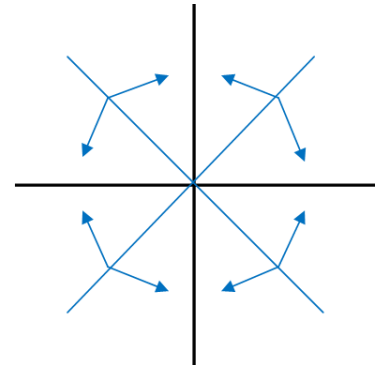
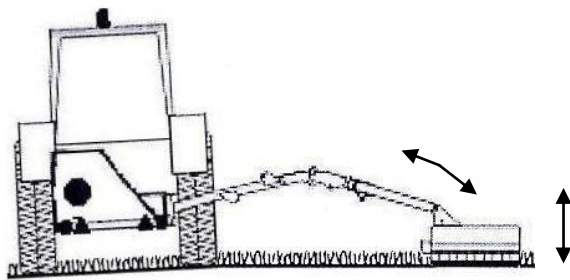
- sw1) Side: Right/Left
- sw2) Lifting: Up/Down
- sw3) Tilting: +/-
- PM) Motors: On/Off
- PA) Auto-alignment: On/Off



Using the magnet on its base connect and fix the

joystick next to the driver's seat in a way that allows comfortable usage when machine parts are moved. All movements are illustrated with pictograms on the table; Stick the movement pictogram next to the driver's seat in order to remind the movements of the machine parts in case this should be necessary. The controller has a connection plug to the cable that comes from the solenoid valve. This cable also includes a 3-pin plug for electricity supply.

### Auto-alignment



- When the auto-alignment button is pressed, the green LED will start flashing. Depending on the position it which it is at this moment, the cutter bar tends to align itself towards the next orthogonal as illustrated by the scheme on the side; the buttons of the movements sw1 and sw2 are excluded. When arrived in position, the green LED will stop flashing and the machine returns to the normal working mode; the movement buttons sw1 and sw2 return active.
- When the auto-alignment button is pressed for at least 3 seconds, initially everything functions as in the case described here above. When positioned, the green LED remains turned on and the cutting bar automatically maintains the position reached before, adjusting itself to the movements of the tractor when it passes on uneven soil; The movement buttons sw1 and sw2 are excluded. During the adaption phases, the green LED will flash and then return fixed. In order to return to normal working mode, you can press the auto-alignment button again or use the switch sw3 that is for bar inclination.

## SAFETY MEASURES

### Before working

Check the stratification, the ground type to work out the method of work, the adjustment and the speed of the machine.

Always check that the safeguards are well installed and that no one is in the immediate area (50mtrs minimum).

Only use the machine if it is in perfect working order.

### During work

Do not let anyone come within the working area; they must respect the minimum safe distance of 50 mtrs; cordon off the working area and put warning signs up if necessary.

While working, keep other people far from the machine, and in particular from the sides of the machine **NEVER STAY BETWEEN TRACTOR AND MACHINE.**

**Use the tractor's power take-off at 400 r.p.m. IN THE 540R.P.M. MODE, never for any reason whatsoever, set it to a 1000 r.p.m**

If you stop working; disconnect the power source, take out the ignition key and put on the handbrake before getting out of the tractor.

Maintain an appropriate speed in order to avoid dangers to you, others and the equipment itself.

**While working or during the machine's moving, do not carry on the machine hanged or seated people.**

When moving on inclined grounds avoid swerving which could cause sliding and overturning.

On uneven grounds or those with obstacles go as slow as possible.

When using the equipment after a long time of inactivity, we advise to check the functioning of the hydraulic system.

The way the equipment (when present) is used, must take into account the "equipment / vehicle" stability ratio; while working continually check the stability.

During work always be alert.

When stopping or stationary pay attention to the ground where you have stopped making sure there are no bumps that could compromise stability. Stop your vehicle and block the equipment in a way that it is secure and does not put you or others at risk.

### NOTE

Do not repair the machine with bad or improvised adjustment because it could cause a bad quality of the work For this reason be sure that your tools are not consumed, pay attention to the working speed, elements which are linked together.



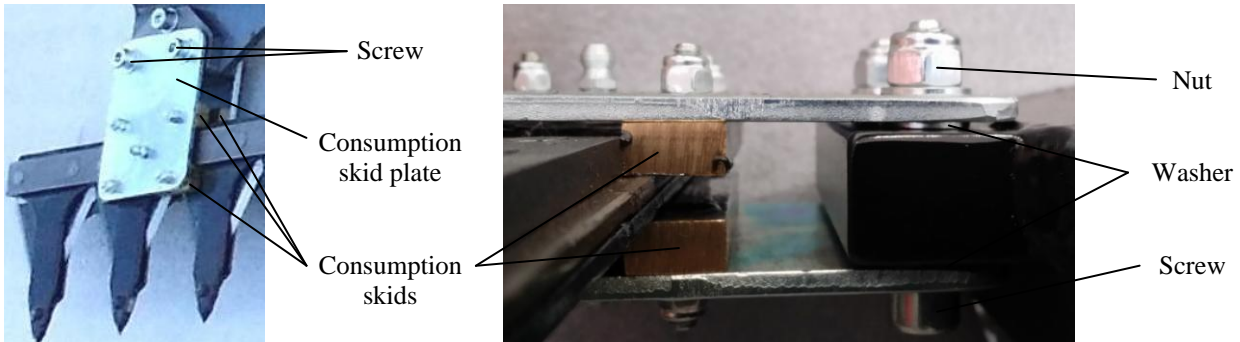
## RISKS

Every machine can cause a risks so this very dangerous let somebody be near the machine if not authorized.

In order to eliminate risks, REMEMBER to take of the key and to mount again the security devices in good and sure position.

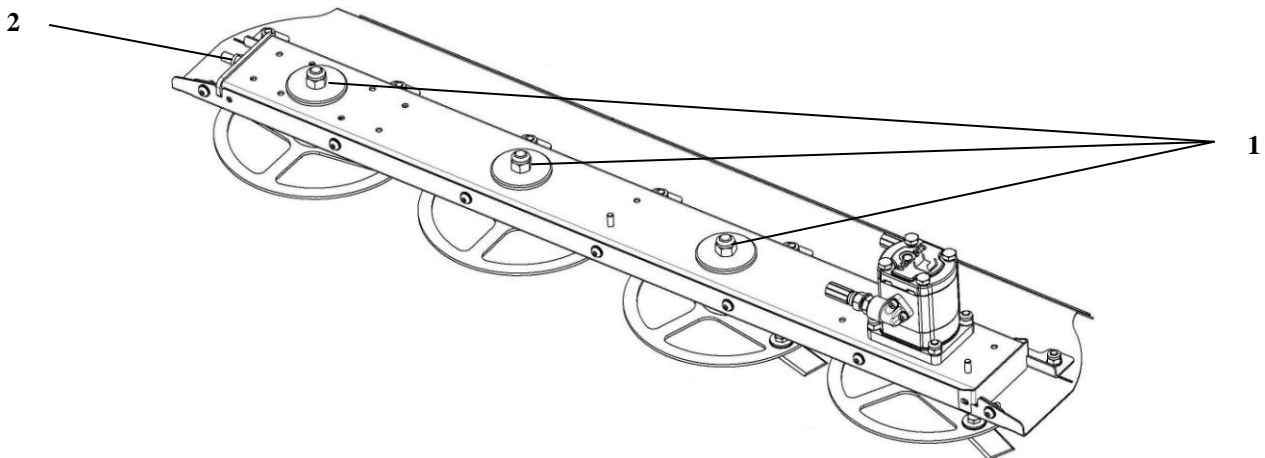
## REGISTRATION

If the cutting bar has too many vibrations during work, slower the rpm of the tractor.



If you note too much play of the **consumption skids** of a double blade bar, fix them as follows: loosen the nuts, extract the screws of the consumption skid plates, and remove the two spacer washers of these plates. Then, put the screws and nuts back on.

When the skids are consumed even more, replace them with a new set, paying attention to put back the washers you removed when adapting the skids.



Check the **tightness of the belts** of the model with swing-away blades and disc saws **after the first 6 hours of work**.

If necessary, tighten the belts by loosening the nuts (1) by 1/2 turn while fixing the bolt from the other side. This allows the pulleys to glide on the bar.

Tighten the belts by working on the nut 2.

Once the belts are tightened, screw the nuts 1 back on tightly.

## MAINTENANCE

Maintaining the machine in a perfect condition means it has a longer life expectancy and retains optimum performance; thus regular small checks are necessary.

This allows for a perfect working order and good reliability.

Cleaning, lubrication and adjustment of the machine must be carried out when it has been turned off.

### General safety measures



Do not allow unauthorized people to interfere with the machine.

Before carrying out checks or maintenance, verify that the machine is completely off.

Never put your fingers in the machine openings without protection.

Never align holes or with your fingers but only with the appropriate centering tools.

Do not touch tools without wearing the correct protective gloves.

Never use petrol, solvents or other inflammable liquids as detergents but use recommended non-flammable and non-toxic commercial detergents to clean the machine.



While using compressed air to clean and/or dry machine parts protect your eyes with goggles and limit the pressure.

Keep the machine clean and in order.

Replace immediately any warning or instruction adhesives, which are no longer visible or missing.

Do not solder near the hydraulic tubes in order to prevent fires.

Pay close attention to losses from the hydraulic system; leakages from small holes can be almost invisible but are able to penetrate beneath the skin: in these cases use face and hand protection.

Never carry out checks to identify leakages with bare hands..

## CLEANING

Wash only with neutral products and water to remove traces of corrosive fluids; dry carefully making sure there are no pockets of water.

If traces of dirt remain, we recommend using specific products following the instructions carefully.

**WARNING: DO NOT USE** products containing perfumed solvents, methanol or hydrocarbons to clean painted parts.

## HYDRAULIC SYSTEM

Control regularly all the tubes of the hydraulic system are fitted properly and there are no leakages; verify that tubes are intact.

Always take the necessary action, whether by repairing or replacing, every tube which is loose or which shows signs of abrasion, tear, defective mounting, or oil loss even from the connections.

Check the connections and ensure that they have been properly joined in relation to each other before pressurising the hydraulic circuits.

Avoid bending, or scratching tubes of the hydraulic system with sharp or abrasive objects.

Replace tubes which show any signs of damage caused by crushing, cracking, use, or with defective connections and avoid using them again.

They could explode during use.



The hydraulic circuits are under pressure and therefore, before adding or removing hydraulic oil, inspect the circuit, place the equipment on the ground and completely discharge the remaining pressure in the system, operating the control lever several times, having first switched off the tractor motor.

**The hydraulic oil in the system is hot, even when use is no longer being made of the machine. wait for the oil to cool down before carrying out any work on hydraulic lines.**

The jet of oil which small losses from the tubes under pressure can generate is dangerous: it can pierce the skin or damage the eyes.

Always wear thick gloves and safety goggles.

To avoid damage, always use the same oil.

The standard machine can work with the mineral oil of the tractor, like Mobil Multivariax/35 HP with viscosity grade ISO VG 68, with the following limitations.



Remember that disposal and law regulates collection of used oil.

Take the aforementioned residues to the appropriate disposal center or keep them in tanks and call specialized companies to dispose of them.

It's absolutely forbidden to take them to illegal dumps or to dump them in rivers or sewers.

## HYDRAULIC SYSTEM MAINTENANCE

If the machine has got an hydraulic kit, we are used to employ an oil for hydraulic kit such as Mobil DTE 25 with viscosity 46 and a working duration of 5.000 hours in constant conditions. The required quantity are approximately 42 lt., with hydraulic oil level indicated by a transparent cap at 3/4 of the tank capacity. Variable working conditions, such as: variation in effort, heating/cooling of the daily temperature, (with the consequent creation of condensation and pollution) decrease the working duration that we can evaluate in about 1200/1500 hours of work.

During this period you have to check periodically the oil level in the tank and if necessary fill it up with oil which has the same viscosity.

When the oil has been completely replaced, we suggest replacing the filters at the inner of the tank too.



Oil level plug

## PERIODICALLY

Check the state of the tools; check they are not broken if there are any breakage replace immediately, using the appropriate gloves for the job.

We recommend using the supplier's replacement parts available from our company or authorized retailers.

Check the legibility of all adhesives and of the nameplates and, if need be, replace them with new ones.

Check the structure.

Remember that it is strictly forbidden to make holes or modify the structure.

**WARNING: for maintenance we recommend that the machine is disassembled from the tractor.**

**WARNING: we recommend contacting the retailer or authorized technician for specific maintenance, repairs and/or setting up the machine.**

**Daily**, carry out a general visual check, functional checks (lever, movements, etc.), and a check of the overall condition of the rubber and metal tubing.

Check all the connections before applying pressure to any of the hydraulic circuits.

**After the first two hours of work**, tighten the tools and the tube connections of the hydraulic oil system and inject thick grease semi fluid semi fluid at lithium for transmission gears, like Mobilux EP 004 with grade industrial NLGI 00, through the greasers.

The parts of the machine not reachable without oil feeder are greased when the machine is assembled and do not need any further maintenance.

We recommend cleaning the greasers and the grease guns before carrying out the lubrication.

The lubrication points are indicated on the machine by adhesives.

Detach the cardan joint from the tractor's side, slide out the inner rod and grease it using the appropriate grease semi hard at calcium for transmission gears, like Stauffer/3 with grade industrial NLGI 3; repeat this operation **every 8 working hours**.

Grease the blades **every 4 working hours**.

Check that all the utensils are tightly fixed **every 8 working hours** and grease the rotating joints.

**Every 16 working hours** grease the security devices and, if present, the spherical quick coupling.

Frequently check the oil levels inside the tank and if necessary fill up the oil; periodically clean the discharge/aspiration oil filter.

**Check** the wear status of the tools. **Verify** that there are no broken cutters and if necessary, replace them immediately.

If you note excessive vibrations, immediately stop the machine and check the state of the utensils.

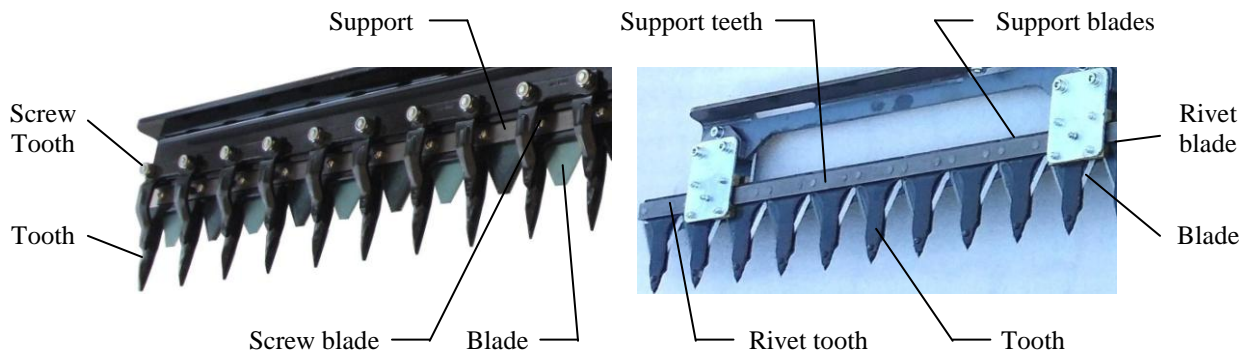
These vibrations might be due to some accumulated dirt or due to a broken utensil. Therefore, proceed to cleaning the utensil or to replacing it.

We remind you that it is strictly forbidden to pierce or modify the structure.

To perform these operations only use heavy working gloves.

It is also recommended to use only original tools, requesting them from our Company or authorized Dealer.

In case of the **single blade** models check after the **first 6 working hours** that all the bolts that fix the blades to their support are still tight. If you find any of the blades broken, replace them. To do so, remove the screws from the corresponding tooth and remove it to free the blade underneath. Remove the screws that fix the blade section, replace the section and the screws and put the tooth back on.



In the case of the **double blade** model, pierce until the old rivet that fixes the tooth or the blade section to its support, is eliminated. Replace the blade section and/or the double tooth and their rivets.

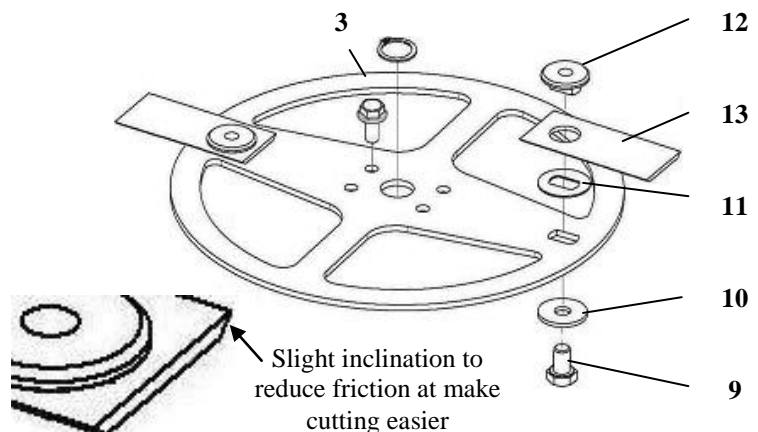
### Replacing the swing away blades

When cutting quality decreases or the blades are very worn, we recommend replacing or sharpening the blades.

Loosen the screw 9 and remove it, then remove from the wheel 3 in this order the washer 10 if present, the spacer 11, the nut 12 and the blade itself 13.

Replace the blade with original blades only. These have to have calibrated holes.

Afterwards, repeat the same operation as before in the opposite sense paying attention to respect the correct sides and to tighten the screw 9 very well.

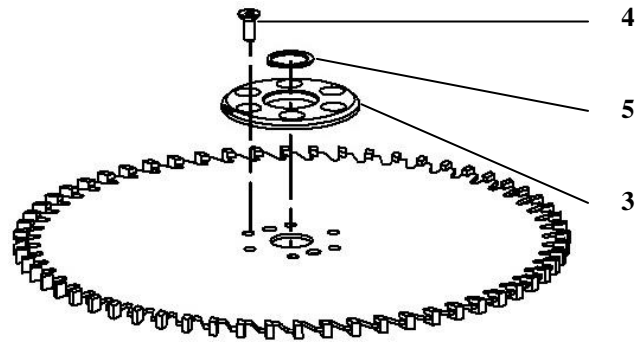


### Replacing the disc saws

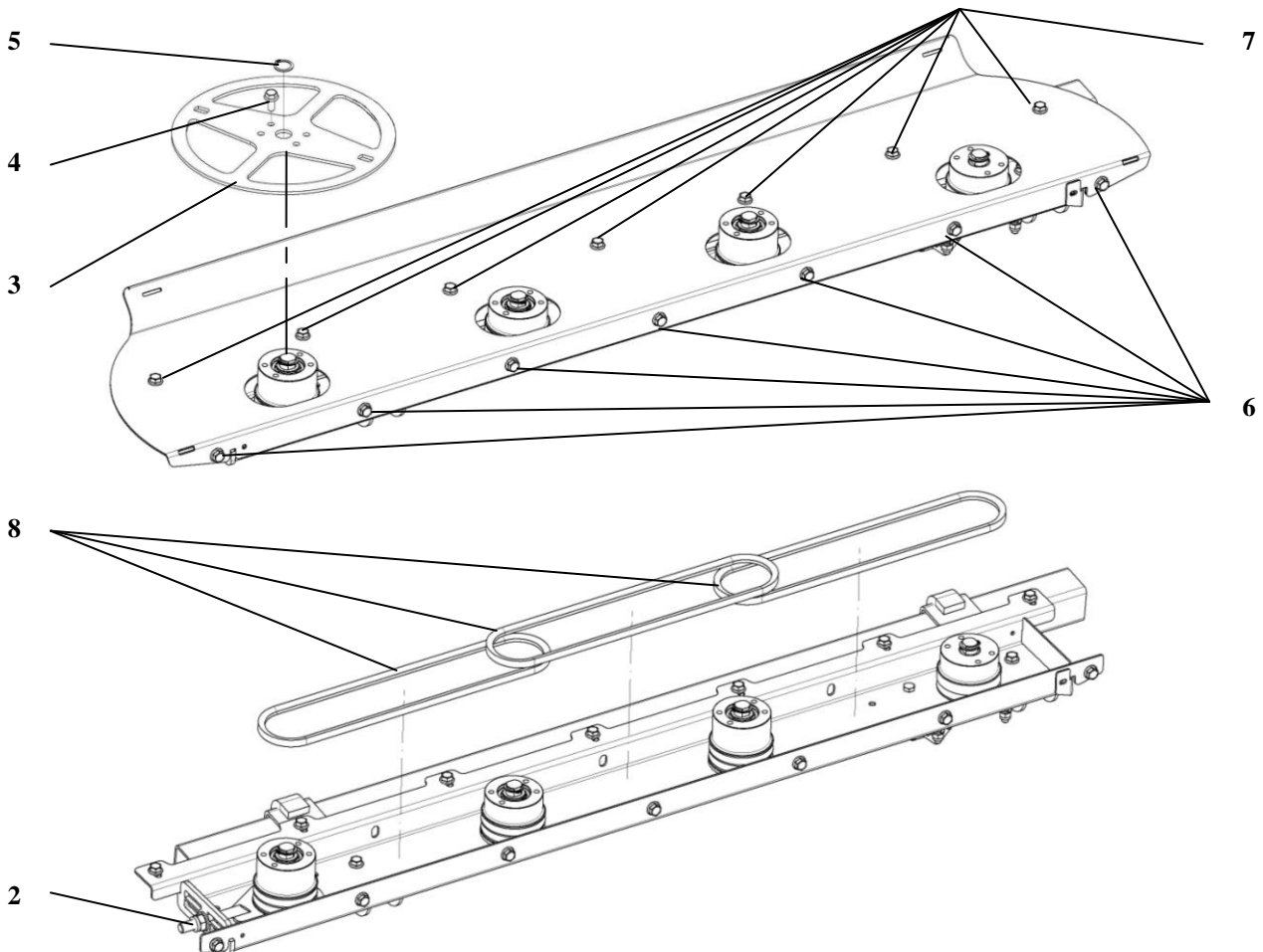
When cutting quality decreases or the saws are very worn, we recommend replacing or sharpening them.

Remove the safety ring 5, unscrew the screws 4, remove the safety ring 3 and the saw.

Replace the saws with original saws only. These have to have calibrated holes. Afterwards, repeat the same operation as before in the opposite sense paying attention to respect the correct sides; Take care to never use non-original saws as they might not be correctly balanced and might provoke vibrations.



### Replacing the belts of the bar with swing-away blades and to disc saws



In order to replace the belts, remove the safety ring 5, loosen the screws 4 and remove the wheels 3 for the model to swing-away blades, or the safety ring 3 and the disc saw for the model to disc saws.

Loosen the belts (see tightening the belts) proceeding in the opposite way then when tightening them. Remove the screws 6 at the front of the bar and the screws 7 at its back, then take of the cover in stainless steel.

With the bar open, replace the belts 8 that are broken or damaged.

Put the cover back on, tighten the screws 6 and 7, then proceed to tightening the belts (see tightening the belts).

**Verify** the existence and the readability of the plates and all stickers and, if necessary, replace them with new ones.

**Weekly** perform a visual inspection of all mechanism and possible loss of lubricant, of the movements and, if necessary, grease the sliding surfaces of the moving parts to ensure functioning and reduce wear controlling also the tubes in iron and plastic.

## TRANSPORT - HOISTING - MOVEMENT

When transporting the machine be careful to block it with ropes, straps or anything suitable to keep the machine stable and safe and to prevent accidental shifting that could cause injury or damage the machine.

If the machine has to be hoisted it must be hooked to the proper hoisting instruments by means of ropes or suitable equipment to secure its integrity.

Before hoisting make sure that hoisting means are suitable in that they have a higher weight capacity than the weight of the equipment.

The machine mounted on the centre of the tractor is not homologated for the transfers on common roads. So they have to be disassemble and loaded on implements on issue and transfered by homologated trailers. Also the machines which are more than 2.5 m. width have to be transfered by homologated trailers and longitudinal positioned to avoid projecting parts.

The hoisting equipment must be adequate and comply with safety standards in effect at the time governing these operations.

Verify that the instruments used are in sound condition and not worn or unsafe in anyway and above all the joints and connections are robust, in good condition and can bear the estimated burden.

Remember that it is absolutely forbidden to remain under or in the immediate vicinity of the object whilst it is being hoisted.

Always use thick protective gloves when carrying out these operations.

The points on the machine which are safe to attach the hoisting hooks to are indicated so by means of appropriate adhesives.

### **UNINSTALLATION OF MACHINE**

Dismount the machine from the tractor and be careful to clean it well.

Park the vehicle on a level surface and in a safe stable way.

Store away from atmospheric agents (inside) and out of the reach of children.



Deliver the parts, packaging and replacement parts to the collection center.

It's absolutely forbidden to leave any materials to litter the environment.

### **DESTRUCTION AND DISPOSAL OF MACHINE**

If you decide to destroy and dispose of the machine it's recommended to render it inoperative by cutting the tubing, disassembling knives and breaking the hydraulic motor.

Also remove identification nameplate of the machine.

### **SPARE PARTS**

When ordering spare parts, you only need to mention the code number of the part and, if desired, give a further description.

If the part belongs to the gear-box, besides the part code and description, please mention the machine roll number, which can be found on its small plate and on the first pages of this manual.

Available on the market are parts such as screws, bearings, cardans, washers, and so on, which, besides our factory, can be bought in specialized shops, just using the same denomination found in this manual.

## CONDITIONS OF GUARANTEE

This machine is guaranteed for 12 months from the date of purchase.

The guarantee covers the replacement of parts agreed as initially defective and for errant assembly operations.

The guarantee doesn't cover:

breakage caused by negligence or non observance of the standards outlined in this manual.

Use or maintenance carried out by untrained or unskilled persons.

Pieces or parts which have been tampered with.

For damages sustained during transport, for incorrect installation, for carelessness or inability to use it.

The guarantee also doesn't cover:

Everything considered materials of consumption.

As well as the necessary labour costs for repairs and the delivery expenses.

The parts which are deemed defective which must be repaired or replaced and are under guarantee will be returned to the manufacturer free port and redelivered to you carriage on delivery with transportation costs and risks wholly with the customer.

If the request is urgent the manufacturer will supply the parts with a standard invoice and reserving the acceptance of the guarantee until after receiving the faulty part.

THE MANUFACTURER reserves the right to modify the machines for commercial or technical motives, therefore descriptions and illustrations of this publication are up to date until printing.

If illustrations of tools or parts of the machine are different from this book, please refer to code number written in the spare parts catalogue.

As above said, this machine was designed in accordance with the provisions and subsequent revisions set out in the EEC "machines article", therefore it is safe and reliable and the manufacturer cannot be held responsible for improper use.

Where modifications have been made without prior written consent, replacement of used parts different from those stated by the manufacturer and use of the machine by untrained persons, the manufacturer cannot be held responsible.

For safety issues not covered in this text please refer to general standards concerning the prevention of accidents.

All disputes and controversies lie exclusively with the territorial competence of the judicial authority of the place of production.