

**ROTOSTO** **MASSANO**



## ***USE AND MAINTENANCE BOOK***

### ***STONE BURIER WITH REAR ROLLER***

**Type:**

**RSG – RSL – RSC – RSE – RSF**

**RSE PLUS**

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“With Declaration of Conformity “(CE)

 Carefully read the manual before using the machine 

Vers. 2015



## **DECLARATION OF CONFORMITY**

### **MASSANO s.n.c.**

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Holder of the technical dossier at head office Company: *Diego Massano*

certifies under its responsibility that the machine:

### **STONE BURIER WITH REAR ROLLER**

**Type :** .....

**Serial n:** .....

**Year :** .....

Complies with the following EU Directive:

**2006/42/CE** (New Directive machines)

To check the conformity of the machine refer to the following European Standards :

*UNI EN ISO 4254-5:2010*

*UNI EN ISO 4254-1:2009*

And the technical standard :

*ISO 11684*                      *1995*

Savigliano (CN), \_\_\_\_\_

The lawyer representing

\_\_\_\_\_

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Dear customer,

We thank you for choosing our ROTOSTONE stone burier. This book provides you all the information for the use and maintenance of your machine. The correct functioning and duration of the machine depend on the correct maintenance and attention in its use.

Massano Snc and your dealer are available for any information regarding the running of the machine and also provide original spare parts to ensure its perfect fit in case of replacement.

In order to ensure the maximum reliability, this machine, has undergone strict tests.

The technical information contained in this document are property of MASSANO snc and must be considered confidential. Distribution and reproduction of this book, even if partially, are forbidden.

The technical data contained in this book are those provided by the manufacturer at the time of writing.

Any total or partial reproduction of this document or its content is forbidden by law.

You should therefore carefully read and understand each part of this USE AND MAINTENANCE BOOK.

The use of the machine for activities not foreseen in the project and not mentioned in this book releases MASSANO snc from any direct or indirect responsibility.

Any unauthorized modification to the machine releases MASSANO snc from any liability for damage or serious injuries, which may turn out the users, third parties and things.

**MASSANO snc declines all type of objective and subjective responsibility when the rules mentioned in this book are not applied and respected.**

## 1 REMARKS

This book together with the Declaration of Conformity has to be considered as an integral part of the machine provided by Massano snc and it must be associated with the machine until its destruction.

If you don't receive the book or you lose it, we strongly suggest you to ask Massano snc for a copy. Our offices will send it as soon as possible.

This book includes operation rules, standard and special maintenance, rules for the research of problems for the machine produced by Massano snc.

We strongly suggest you to **read this use and maintenance book carefully**, and to follow scrupulously all the described instructions before using, checking and working with and on this machine.

If you run into problems with the comprehension of text/tables, or if illustrations/schemes are not clear, please contact immediately Massano snc to get further information from skilled technicians or from the book editor.

Massano snc is at disposal of users, sales managers and other interested people in order to establish an active collaboration to improve the understanding of this book.

In compliance with current laws, information concerning dangerous situations are pointed out in chapter 8.

***This book has been filled in according to laws in force at the time of printing.***

**This book has to be considered as an integral part of the machine and, together with the Conformity Declaration, it must be associated with the machine until its destruction.**

## 2 GENERAL INFORMATION

### 2.1 INFORMATION ABOUT THE BOOK

This book provides all the information for the use and the maintenance of the Stone Burier machine produced by MASSANO snc. The correct operation of the machine and its duration depend on its correct maintenance and use.

Please note that some details in the pictures may differ from the machine in your possession, some component could have been removed in order to ensure pictures' clarity.

This book deals with all the topics required by EEC "Directive 2006/42/CE" and pertinent technical rules.

According to EEC rules, the operator must keep the special pictograms on the machine in good conditions and replace them if illegible.

**The instructions in this book are addressed to a skilled user with specific knowledge of tractor driving. The authorized user must be correctly trained.**

The technical information contained in this book are property of Massano snc and they are strictly confidential.

**We strongly suggest you to use only original spare parts and accessories.**

**The use of non-original parts could invalidate the guarantee, be dangerous and risk life and reduce the performance of the machine.**

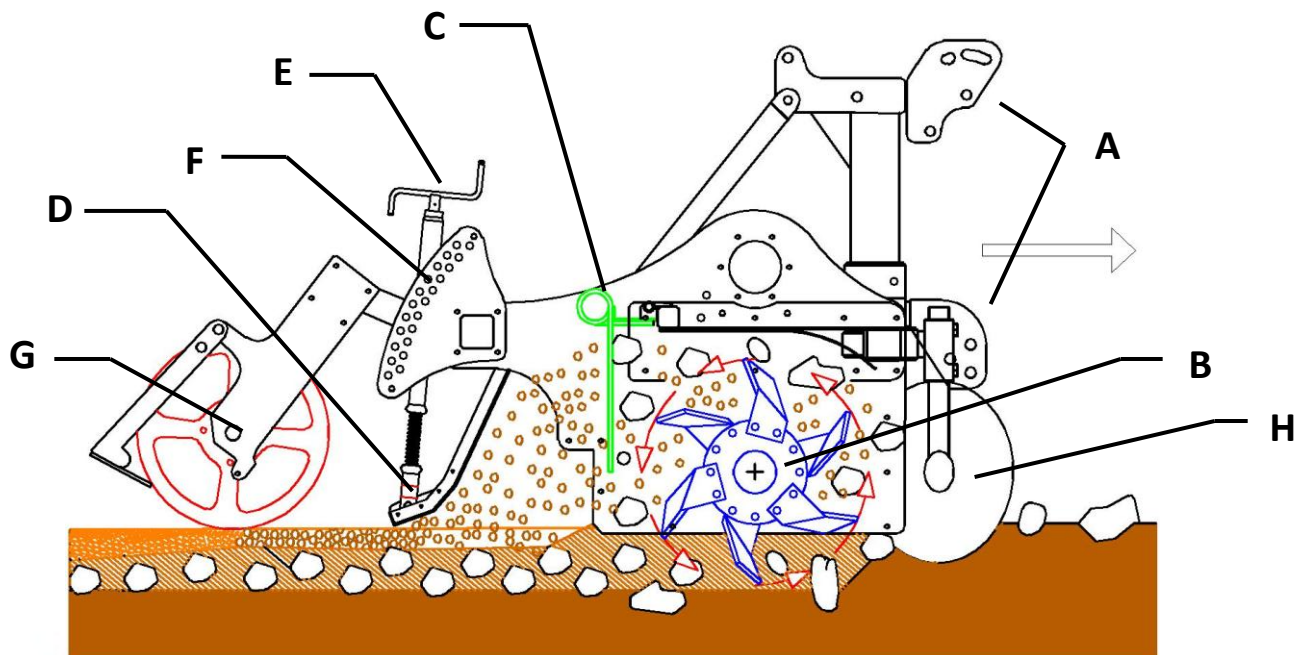
## **2.2 INFORMATION ABOUT THE MACHINE**

This manual describes the operating principle of the stone burier for stones and vegetable residues type ROTOSTONE.

ROTOSTONE have the capacity to work on a non- plough soil, for the following reasons:

- The rotor works in an anti clockwise direction, in comparison with traditional machines.
- This type of work develops a breakup of the soil from the bottom to the top without compacting the bottom layer, replicating the action of a spade, but with the difference of sifting out and burying, in one pass, clods, stones and vegetable residues, achieving a fine, loose top layer of soil that allows easier and more accurate seed planting and transplanting, and at the same time improving the ability of the soil to drain.
- This principle does not apply to the traditional tiller that works the soil in a downward direction, and at a working speed that results in a varying quality of finish. Therefore, in clay soils or those lacking in organic matter, these occurs a major compaction of the soil and reduction in a soil's ability to drain.
- The ROTOSTONE system, when used in agriculture, allows the improved management of the soil and direct seed or transplanted cultivation, substantially reducing the germination time (a reduction of three days in the harvest of lettuce) and an increase in production yields. These results were proven in test trials done in conjunction with the central research department of the agricultural university of Lyon France, where comparisons were done on the same test plots of land with other machines such as tiller, bedformer and power harrows.
- All these reasons have allowed our equipment to achieve a high level of quality in both the dependability during the working phase and the result obtained after planting or transplanting. For these valid reasons many farmers from many countries have chosen to come to the ROTOSTONE system, abandoning the earlier methods of plowing and tilling.





This three point (A) mounted machine, when hitched to a tractor of appropriate horsepower, has proven to be ideal for the elimination, in one pass, of stones and vegetable residues on the surface.

The heart of the machine is the blade rotor (B), composed of specifically designed blades. Whose counter-rotation, throw stones, dirt, weeds and debris against the selection grill (C). The coarse material that is stopped by the grill, falls in the trench made by the working depth of the rotor, and is covered by the fine earth that passed through the selection grill and it is lightly pressed by the edge of the trailing board (D), forming a perfect seed bed with pressure controlled by the crank handle (E).

The selection grill, in addition to having the function of sifting the soil, allows the operator to work in especially heavy conditions. The vibrating system guarantees the constant cleaning of the spring tines even in conditions of moist or wet soil, obtaining the continuous flow of dirt. Furthermore, the ability to change the working angle of the selection grill allows the operator to work more deeply with less power.

The working depth is adjustable from 5 to 35 cm (5-22 cm RSG, 5-22 cm RSL, 5-24 cm RSC, 5-30 cm RSE, 5-35 cm RSE Plus), using a special system of pins (F) that determine the position of the rear roller (G).

The side discs (H) are positioned in front of the machine to greatly facilitate the penetration and depth by opening a narrow trench that keeps the shield for the side chain drive from dragging before the rotor.

The large choice of accessories available for the stone burier allows the operator to work in different sectors: creation and maintenance of green areas, horticulture, flower nurseries,

development and maintenance of golf courses, remediation and inter-row weeding: vineyards-orchards-nurseries.

**The Stone burrier can mount two types of rotors :**

**1° TYPE - ROTOSTONE -**

Used to bury stones, vegetables residues such as roots, harvest remains and small sticks by means of **specially designed tiller blades** that, in the soil, pull out the stones and throw them against the selection grill.

In the photograph below (Fig. 1) is shown the rotor with the special tiller blades mounted on double flanges.

Fig. 1  
On request the machine can be equipped with double flanges like the photograph



**2° TYPE - FRANGITER -**

Use to fracture and bury the hard clods present in especially dry soils with high clay content by means of **special tools called blades** which, in clay soils, break up the clods and throw them against the selection grill.

In the photograph below (Fig.2) is shown the rotor with the special blades mounted on the inclined flanges. Their particular arrangement along with the reverse rotation, creates satisfying results with just one pass without creating a work pan and guaranteeing excellent drainage of the worked ground.

Fig. 2



## 2.2.1 Machine identification

On the frame of the machine are fixed the EEC brand and the identification label giving manufacturer's data, model, serial n., production year and weight of the machine.



Location of the EEC plate on the machine

	<b>MASSANO snc</b> <i>Farm, Horticulture and Garden Equipment</i>		
Modello Model	<input type="text"/>	Peso Kg. Weight	<input type="text"/>
Matricola N° Serial N°	<input type="text"/>	Anno Year	<input type="text"/>
SAVIGLIANO (CN) Italy - Via Costigliole 4 - Tel. +39.0172.377167 - Fax +39.0172.377014 info@massanosnc.com www.massanosnc.com			

The information shown on the identification plate are necessary to request spare parts.

It is absolutely forbidden to remove and/ or modify all or part of the data specified on the identification plate of the machine.

The machine can be used only for agriculture, as previously described.



### WARNING!

**The machine must be used by a single user.**

**Different uses will be consider incorrect.**

If some pictograms will be damaged or get lost, they should be requested specifying the identification data on the plate.

This machine is generally used during the day. If you want to use the machine by night or in conditions of reduced visibility, as an exception, you must use the lighting system of the tractor.

## 2.2.2 Use of the machine

The following are the main rules for the use of the Stone Burier:

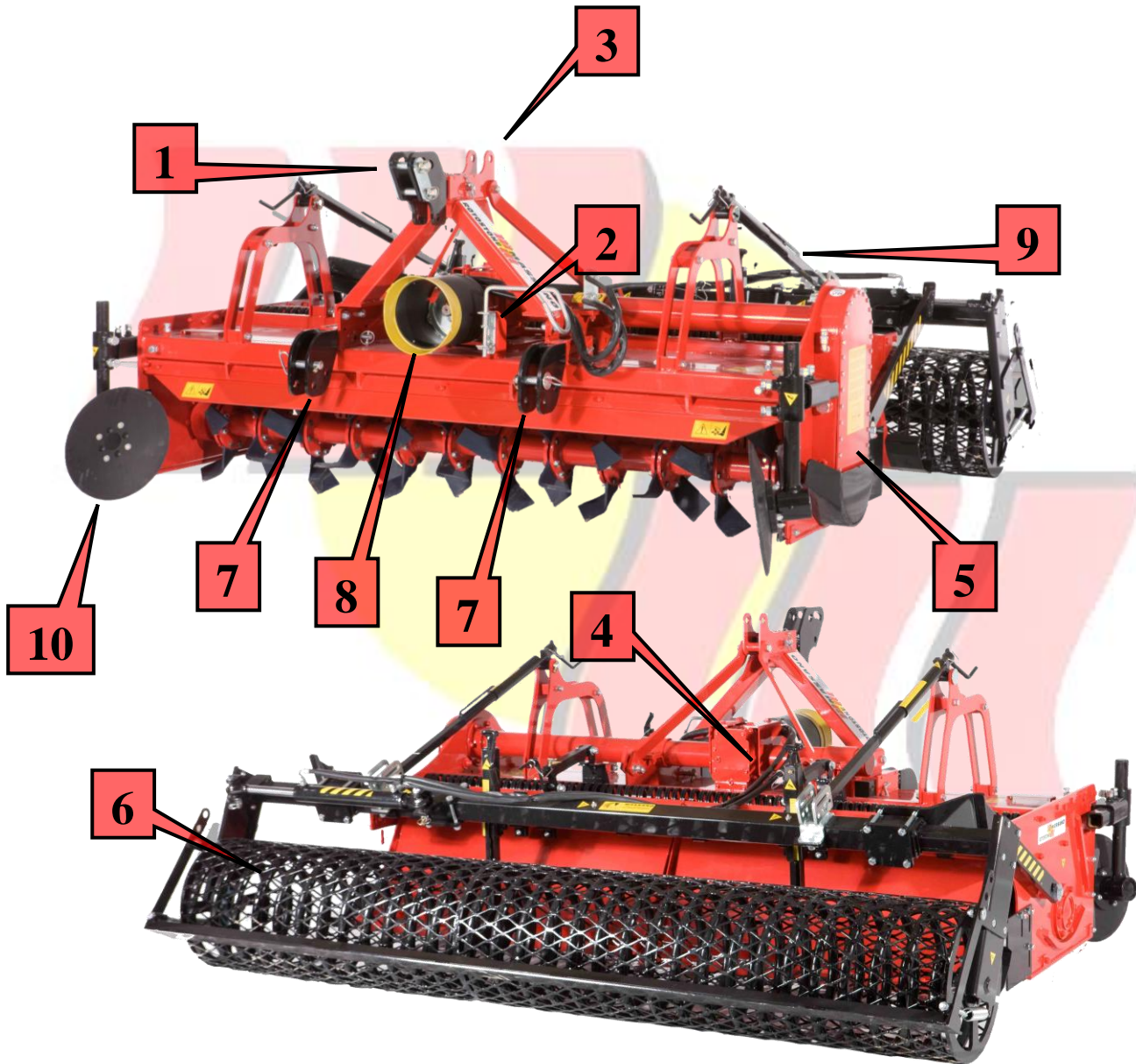
- Observe and apply carefully the instructions for adjusting the height of the machine from the ground. It is strictly forbidden to stop within the range of machine's working up to 50 meters.
- If there are grass or weeds, it is advisable to clean the ground before moving on with the Stone burier, in order to identify if there are obstacles that could damage the parts of the machine;
- Before using the machine make sure that there are not, on the ground, foreign objects such as pieces of iron or bottles of glass, big stones, logs and/ or any obstacle that could damage the machine during the use;
- Do not work at excessive speed, it could damage the machine as well as make the process ineffective and dangerous. In order to use the machine in the right way the speed of the Stone Burier must be between 0.5 and 5 km/ h;
- Do not go into reverse with the machine, do not make narrow turns with the lowered machine or anyway during the working process.
- Do not use the machine for the transport of people or things;
- Do not apply items such as weights to the machine;
- Do not use the machine if it has not, even partially, safety guards such as: casings, protective sheaths of the hydraulic pipes, safety pictograms, space bars, cardan shaft casings, etc .;
- Do not connect the machine to small tractors. Before connecting the machine to the tractor you have to make stability calculation, as described in this Use and Maintenance Book;
- Do not use the machine if it is damaged or excessively worn;
- Do not use the machine if you are tired, sick or under the influence of alcohol or drugs.

### 3 TECHICAL FEATURES

The Stone Burier, with different power features, has been designed to work in the heaviest conditions minimizing the possibility of damage and wear. This feature is guaranteed by the use of high quality materials during all stages of machine's construction and can reduce amortization costs to a minimum.

During production and construction's stages we kept to all the necessary precautions in order to supply a high quality and reliable product in full compliance with in force laws , in particular with the prevention of injuries.

#### 3.1 MACHINE PARTS AND TECHNICAL DATA



- 1 – Upper three point linkage
- 2 – Drive shaft support
- 3 – Frame three point linkage
- 4 – Speed reducer unit (540 rpm)
- 5 – Side transmission

- 6 – Rear roller
- 7 – Lower three point linkage
- 8 – P.T.O. and safety guard
- 9 – Roller adjustment
- 10 – Lateral discs

### 3.2 TECHNICAL DATA

RSG	TYPE									
		cm	cm	mm	N°	rpm	Hp	mm	Kg	cm
	<b>125 RSG</b>	125	165	420	24/36	260	40-50	360	640	10/22
	<b>145 RSG</b>	145	185	420	28/42	260	50-60	360	700	10/22
	<b>165 RSG</b>	165	205	420	32/48	260	60-70	360	770	10/22
	<b>185 RSG</b>	185	225	420	36/54	260	70-80	360	830	10/22

RSL	TYPE									
		cm	cm	mm	N°	rpm	Hp	mm	Kg	cm
	<b>125 RSL</b>	125	165	420	24/36	260	60-70	360	770	15/25
	<b>145 RSL</b>	145	185	420	28/42	260	60-80	360	800	15/25
	<b>165 RSL</b>	165	205	420	32/48	260	60-80	360	880	15/25
	<b>185 RSL</b>	185	225	420	36/54	260	60-80	360	960	15/25
	<b>210 RSL</b>	210	250	420	40/60	260	80-100	360	1040	15/25
	<b>230 RSL</b>	230	270	420	44/66	260	80-100	360	1120	15/25
	<b>250 RSL</b>	250	290	420	48/72	260	90-110	360	1200	15/25

RSC	TYPE									
		cm	cm	mm	N°	rpm	Hp	mm	Kg	cm
	<b>145 RSC</b>	145	185	460	28	260	70-80	480	980	15/25
	<b>165 RSC</b>	165	205	460	32	260	70-80	480	1060	15/25
	<b>185 RSC</b>	185	225	460	36	260	70-80	480	1140	15/25
	<b>210 RSC</b>	210	250	460	40	260	80-100	480	1220	15/25
	<b>230 RSC</b>	230	270	460	44	260	80-100	480	1300	15/25
	<b>250 RSC</b>	250	290	460	48	260	90-120	480	1380	15/25

RSE	TYPE									
		cm	cm	mm	N°	rpm	Hp	mm	Kg	cm
	<b>145 RSE</b>	145	185	540	28/42	240	80-100	480	1290	15/30
	<b>165 RSE</b>	165	205	540	32/48	240	80-100	480	1340	15/30
	<b>185 RSE</b>	185	225	540	36/54	240	90-100	480	1390	15/30
	<b>210 RSE</b>	210	250	540	40/60	240	100-120	480	1510	15/30
	<b>230 RSE</b>	230	270	540	44/66	240	110-130	480	1590	15/30
	<b>250 RSE</b>	250	290	540	48/72	240	120-140	480	1680	15/30
	<b>270 RSE</b>	270	310	540	52/78	240	130-150	480	1780	15/30
	<b>300 RSE</b>	300	340	540	60/90	240	130-160	480	1900	15/30
	<b>320 RSE</b>	320	360	540	64/96	240	130-160	480	2200	15/30
	<b>360 RSE</b>	360	400	540	72/108	240	130-160	480	2400	15/30

RSE PLUS	TYPE									
		cm	cm	mm	N°	rpm	Hp	mm	Kg	cm
	<b>250 RSE-PLUS</b>	250	290	540	48/72	260	150/160	600	1890	15/30
	<b>270 RSE-PLUS</b>	270	310	540	52/78	260	150/180	600	1960	15/30
	<b>300 RSE-PLUS</b>	300	340	540	60/90	260	160/180	600	2050	15/30
	<b>320 RSE-PLUS</b>	320	360	540	64/96	260	160/200	600	2130	15/30
	<b>360 RSE-PLUS</b>	360	400	540	72/108	260	180/220	600	2350	15/30
	<b>*400 RSE-PLUS</b>	400	440	540	80/120	260	200/240	600	2500	15/30

\*Available only on request.

### 3.3 ACCESSORIES

- **Lateral discs:** allow the lowering of the machine in any condition. The side disc creates a tube that is lateral as to the machine and that allows the passage of the side chain transmission. After the casing's passage the side tube is closed thanks to the lateral leak of the worked soil and it is adjusted by positioning the special casing.
- **Hydraulic seeder connection:** allows to assemble any seeder to the Stone Burier very easily. The hydraulic connection raises the equipment bringing it above the machine. MASSANO snc suggests to use seeder with a weight lower than 1200 kg and with a length lower than 220 cm.  
**Remember that traffic on public roads is permitted only with the single Stone Burier connected to the tractor. It is strictly FORBIDDEN to circulate on public roads with a second machine connected to the Stone Burier.**
- **Rear P.t.o. :** allows to apply to the back of the Stone Burier equipments that require P.t.o.
- **Hydraulic jack adjustment for the rear roller:** hydraulic device that allows to adjust the working depth of the stone burier during its running, directly from the tractor's cabin.
- **Rear roller with hydraulic displacement:** hydraulic device for the lateral displacement of the roller during work, directly from the tractor's cabin; it allows to adjust the roller sideways making easily the use of the machine on greenhouse crops.
- **Maintenance stands:** allow to carry out maintenance intervention or adjustment of the machine in conditions of greater security. They have special hooks on which you can lay down the machine with care and it will be completely stable. You have to put the machine in a lightly angled position in order to make the operations easier.
- **Anti-wear tools:** allow the use of the machine in particularly clayey soil, greatly reducing components' wear that are usually compromised when used on particular type of grounds.
- **Rear roller:** there are different types of rear rollers available to work in any situation.
  - **Perforated metal**
  - **Cage**
  - **Packer**
  - **Smooth**
  - **Spiral**
- **Front subsoiler anchors:** allows to use the Stone Burier directly on hard soils avoiding previous plowing.

## 4 NOISE LEVEL

All MASSANO snc machines underwent a severe noise level test.



**ATTENTION!**

**The sound emission level is 82 dB(A) ± 1 Db**, measured in open field at 3 metres from the machine and at 1.6 metres from the ground, when the machine continuously worked at maximum speed allowed.

**According to collected data it is prescribed using devices for hearing protection.**

Although there is a correlation between the sound emission and exposure levels, this data cannot be used to determine if it is necessary to take precautions when using the machine. There are in fact other elements that may affect the sound exposure level, such as the working environment features and the presence of other noise sources. However, the information about the uttered noise level of the machine will help the user in the drawing up of the evaluation of the dangers and risks.

## 5 PACKAGING AND DELIVERY

It is not necessary to pack the machine. It is usually supplied by MASSANO snc ready to be used previously adjusted for work and is shipped in this condition.



**ATTENTION!**

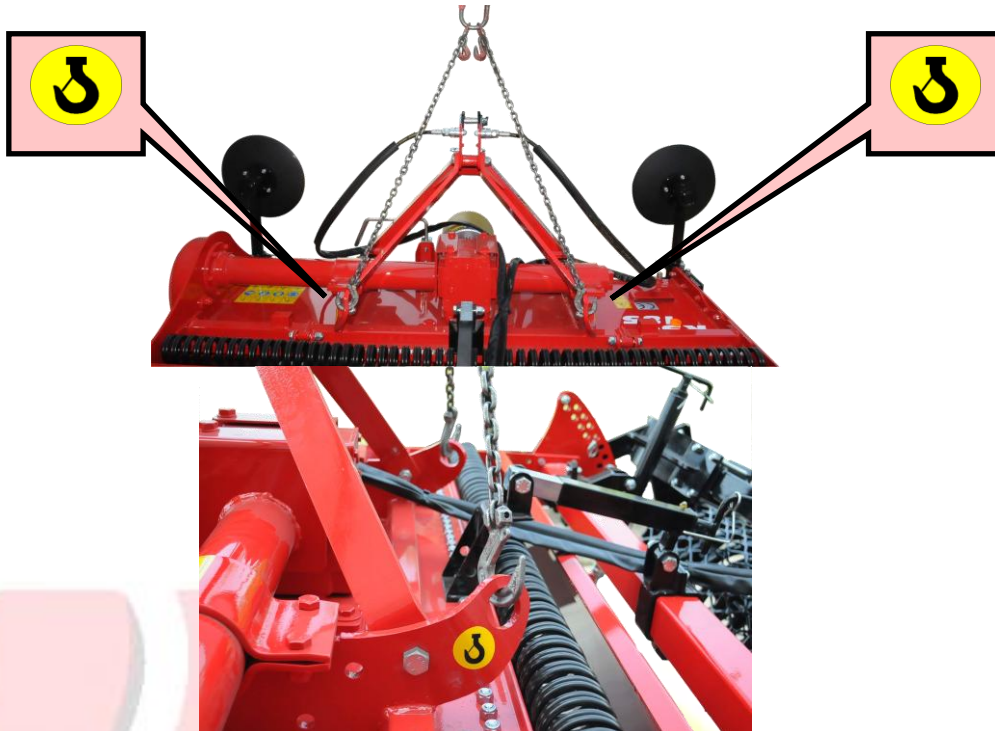
**In order to lift the machine use safety hooks and ropes or chains of adequate capacity. They have to be put in the suitable points for lifting. They are appropriately pointed out on the pictograms on the machine. You can see them at the next page.**

**Before lifting the machine it is necessary to control the mass of the machine using the "Technical Data" schedule contained in this User and Maintenance Book properly sizing the used lifting equipment.**

For the transport by road of the machine that is not connected to a tractor by the rear lifting system, after lifting the machine by crane or bridge crane, it must be put down with care on the flatcar of a suitable transport, with sufficient capacity and it has to be fastened to the flatcar .

In order to carry out lifting operations, loading and transport of the machine it is strongly suggested to use skilled trained staff (embarkers, forklift truck workers, etc.).





### ATTENTION!



Before lifting the machine, make sure that the used device (crane, bridge crane, forklift truck, etc ..) is sufficiently sized in relation to the mass of the machine you have to move (Mass of the unit, see section 3.2 "Technical data")

Do not move the machine without checking its perfect stability during the operations you have to carry out.

## 6 STORAGE

If you do not use the machine for long periods, you need to store it in a dry environment, sheltered from the weather, and protect it with a perspied piece of material (eg. fabric) to avoid dust accumulation and moisture formation that can damage the non-painted parts (front discs, tools, rear frame, rear ploughshares, etc.).

Before you store the machine, it is suggested to clean it with care using a pressurized water jet and/ or compressed air, dry and grease all the sections described in this book. Grease adequately all non-painted mechanical parts in order to protect them from the rust.

Check: the wear of all tools, the tightening of the fixing screws, the presence of paint on the whole machine, the presence of all pictograms restoring them if missing, the presence of all protection and safety devices of the machine (eg. side chain transmission, p.t.o. casing, front spacer bars, support for the hydraulic pipes, support for the drive shaft, etc.), the chain tension of side transmission, the oil level within the gearbox, the oil level in the side chain transmission.

- Position the machine in a safe and secluded place without slopes, in order to not hamper the transit of people and vehicles, make sure that this place cannot be reached by unauthorized people, especially children.

- Position the machine on the ground, switch off the tractor, disconnect the ignition key from the switchboard and start up the hand brake.
- Disconnect the machine from the tractor, as described in this book.
- Once the disconnection of the machine is ok, you have to put again the three-point pins into the suitable holes in order to avoid their loss.

## **6.1 RESTORATION AFTER A LONG STORAGE**

Before you start using the machine after a long storage it is necessary to follow the instructions below:

- Check if there are some rusted metal parts, missing pictograms, structural deformations or oil leaks. In case you notice the presence of one or more of these situations, act in the most appropriate way. If necessary, contact MASSANO Snc or its dealer;
- Wash the machine with care, grease the points highlighted in this book and on machine pictograms;
- Check that the pipes and the hydraulic packing are intact. In case you notice crackings, abrasions, cuts or cracks of pipes replace them immediately. Remember that every six (6) years from the manufacturing date of each pipe, it must be replaced.
- Check the presence of all machine's parts, in particular the protection devices (eg. side chain transmission, p.t.o. casing, front spacer bars, etc.) and the additional components (eg. drive shaft, connecting pins, support of pipes and drive shaft, etc ..).
- Check the oil level inside the gearbox
- Check the oil level inside side chain transmission
- Check the tension of the side chain transmission, bringing attention to the sticker on the cover.
- Check the correct running of all the adjustment cranks of the machine greasing them if necessary.
- Connect the machine to the tractor as described in section 8.3 and start slowly, keeping the engine speed of the tractor to a minimum, operating repeatedly all devices connected to the different pipes of the machine and checking the right working of all parts.

## **6.2 DISPOSAL AND SCRAPPING**

In case of scrapping the machine must be disposed off in suitable dumps, in accordance with current legislation.

Recover the exhausted oils and dispose them of in the suitable collection centres.

Before scrapping the machine it is necessary to separate plastic or rubber parts from the iron ones.

Plastic, rubber, aluminum and steel parts can be recycled, if collected separately from the suitable centres.

Exhausted oil must be appropriately recovered and should not be scattered into the environment, because, according to current legal regulations, it is a hazardous waste; for this reason you have to give it to a collection site. Then contact the closest Consortium of Exhausted Oils.

**THE FOLLOWING RULES SAFEGUARD YOUR SAFETY. YOU MUST READ THEM CAREFULLY, MEMORIZE THEM AND APPLY THEM ALWAYS.**

## 7 SAFETY REGULATIONS

Use the machine, perform periodic checks and maintenance intervention in compliance with the current safety rules.

The non-observance of rules or basic safety precautions may cause accidents during operation, maintenance and repairing.

Each use of the machine that differs from that described in this book, and for which the machine has been designed, is forbidden and its execution must be clearly authorized in writing by our Company.

Every change you bring the machine that is not previously authorized by the manufacturer (in writing) releases MASSANO Snc from all civil and criminal liabilities towards people and/ or things.



### WARNING!

**MASSANO Snc is not responsible for possible damages caused by a not foreseen or inadequate use of the machine.**

**Do not tamper with or remove protections and safety devices applied on the machine for operator, people and machine safety.**

The machine must be exclusively used by authorized trained staff with driver's license which knows how the machine works and the dangers.

In case of doubts, please contact directly our technicians.



### WARNING!


**All the instructions below help in the operator and third parties' safety during the use of the machine.**

**They have to be respected in order to avoid unpleasant accidents.**

## 7.1 SAFETY AND ANT-INDUSTRIAL INJURIES REGULATIONS

**WARNING!**


**Check the machine before starting work.**



**The user can only do the operations described in this Use and Maintenance Book. All the operations that are not described in this book have to be considered FORBIDDEN and their execution is only allowed to MASSANO Snc authorized staff (manufacturer technicians or dealer mechanics)**

Massano s.n.c. cannot foresee all possible circumstances that are able to cause dangers. Warnings contained in this book and on the machine are not complete.


- In addition to the warnings included in this book, please observe all general safety and anti-industrial injuries regulations.
- Use the machine carefully with common sense and responsibility.
- Do not use the machine or service it before reading and understanding the instructions contained in this book.
- The symbols on the machine give you important information and their observation keeps you safe.
- Make sure that all safety pictograms are readable. Clean and replace them, if necessary.



**WARNING!**

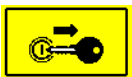
**Before using the machine the user has to know all the devices, controls and workings. Read this book carefully and understand it.**

- Before using the machine, make sure that all safety devices are correctly placed and in good condition. If they are broken or damaged replace them exclusively with original Massano spare parts.



**WARNING!**

**Before using the machine, make sure that there are no people or animals within 50 mt.**



**Before getting off the tractor and before serving the machine, put it on the ground. Operator must pull the hand brake, switch off the tractor and remove the ignition key.**

- This instructions' book must be always within reach of the user in order to check the working process of the machine during its use. If you lose this book or it is damaged please ask MASSANO Snc for a copy.
- **The machine must be used exclusively by authorized trained staff with driver's license for tractor. The machine is connected to a tractor.**

- **The machine is designed to be used by a single user, who during all the operations must remain on the tractor.**
- Do not use the machine if you are tired, ill or under the influence of alcohol, drugs or medicines.
- **We suggests you not to wear clothes that could get caught (sleeves without closed cluff, belts, necklaces, bracelets, rings).**
- Make sure that the machine has not been damaged during the transport. If it has been damaged inform MASSANO Snc immediately.



**During work, maintenance, repairing, transport and storage of the machine, the operator must always wear a close-fitting overalls, safety shoes, safety gloves and, if it is necessary, anti-dust mask and casing for hearing protection.**

- While operating, the machine can raise dust, especially if the ground is dry. We suggest you to use tractors with booth, equipped with filters in the ventilation system or to use suitable protections for respiratory tract e.g. anti-dust masks or masks with filter .
- Keep the machine free from foreign materials (e.g. waste, tools, different type of objects) that may cause damages or injuries.



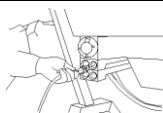
### **DANGER!**



**It is forbidden to get on the machine or to make oneself carried when it is moving.**

**Check before, during and after the use of the machine that the drive shaft protections are intact and in good conditions.**

- When connecting the machine to the tractor, make sure that the drive shaft is correctly engaged (see section 8.3)
- Disconnect the machine from the tractor only on a flat and firm ground, make sure that the machine is steady and stable.
- In case of breaking or deterioration of protections or machine's casing, replace them immediately with original MASSANO spare parts.



**Check that hydraulic pipes are correctly connected, according to the recognition colour code. Remember that their reversal causes movements opposite than the usual ones .**

- Check the hydraulic pipes wear. Replace them if they are deteriorated or at least every six years, contacting Massano Snc or one of its authorized dealer.
- When the machine is disconnected from P.t.o., put the hydraulic pipes and the drive shaft on the suitable provided supports.



**WARNING!**

When the engine and/or P.t.o. is running, do not interpose between the tractor and the Stone Burier.

In order to perform all the operations you have to switch off the tractor, pull the hand brake, remove the ignition key and, if possible, lower the machine on the ground.

- Every machine changes may cause safety problems. In this case the user is responsible for possible accidents.

**Use MASSANO original spare parts only.**

Massano Snc is not responsible for:

- Incorrect use of the machine or employment by non-trained staff ;
- Heavy lacks in the expected maintenance;
- Non- authorized changes or interventions by Massano Snc;
- Use of non-original spare parts or not specific spare parts for this type of machine;
- Total or partial non-observance of instructions contained in this book;
- Non- observance of common safety rules;
- Exceptional events.

## 7.2 SYMBOLS' GRAPHIC REPRESENTATION

The symbols below attract the operator's attention on dangerous situations that may occur and give you safety indications.

The following symbols on the machine specify dangers or duties that the user must keep to.

### SYMBOL

### DESCRIPTION



**1. ATTENTION** – Before working with the machine read and understand the use and maintenance book supplied with it.



**2. ATTENTION** - You can service or adjust the machine only if you have read the use and maintenance book, stopped the machine and removed the ignition key.



**3. ATTENTION- DANGER** of under pressure fluids. Read the book carefully before acting. In case of contact with harmful fluids, get in touch with a doctor immediately.



**4. ATTENTION** – Before connecting the drive shaft, check P.t.o. direction of rotation and number of revolutions (540 r.p.m.).



**5. ATTENTION** – Before connecting the drive shaft, check P.t.o. direction of rotation and number of revolutions (1000 r.p.m.). **RSE-PLUS models.**



**6. ATTENTION – DANGER** of contact with blades. Do not bring feet near to the machine.



**7. ATTENTION-** Because of possible dropping of flying materials/objects, **do not stop near the machine and do not bring near to it.** Keep a minimum safety distance of 50 mt.



**8. ATTENTION-** Do not get on the machine.



**9. ATTENTION-** Danger of getting caught and dragging. Do not bring hands near to the drive shaft when it is working.



**10. ATTENTION-** Do not stop between the tractor and the machine.



**11. ATTENTION-** Do not remove or open protection casings until the chains are completely steady.



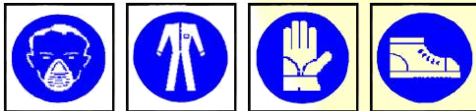
**12. ATTENTION-** Before bringing near to the machine, wait for a complete stop of the rotating parts.



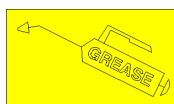
**13. ATTENTION – DANGER** of crushing and shearing. Do not place the hands near to the shear points.



**14. ATTENTION:** In order to lift the machine, hook it in the indicated points.



**15.** Use the required protection devices.



**16.** Greasing points.



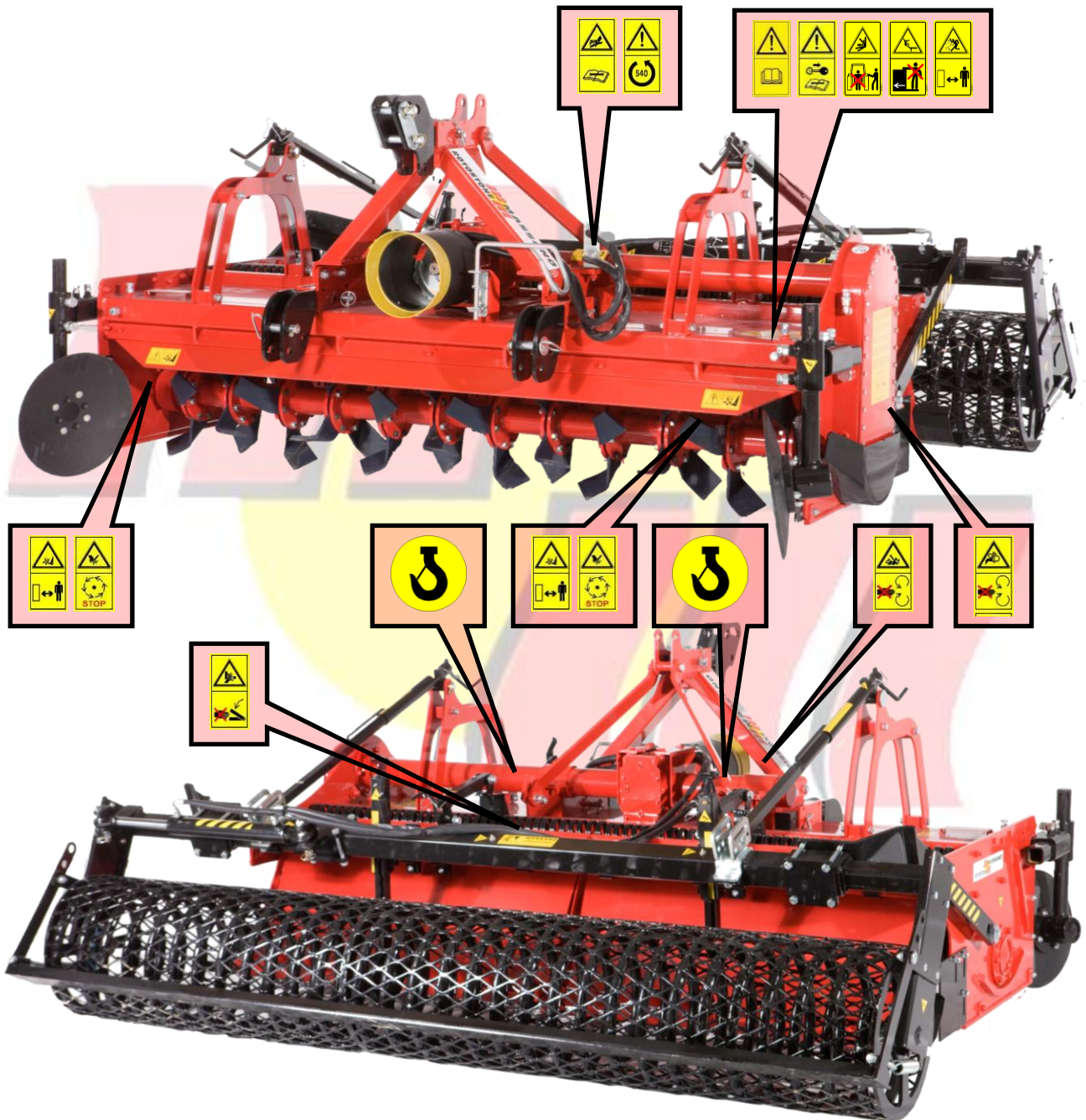
### 7.3 LOCATION OF PICTOGRAMS ON THE MACHINE



**WARNING!**

Make sure that the safety pictograms on the machine are readable. Clean them using a cloth, soap and water.

Replace damaged labels and stick on the new ones in the correct place, as shown below.



## 8 INSTALLATION AND ADJUSTMENTS

### 8.1 SAFETY RULES FOR THE CONNECTION TO THE TRACTOR



#### **WARNING!**

**During work, maintenance, repairing, transport and storage of the machine, the user must always wear safety shoes, safety gloves, casing for hearing protection and anti- dust mask in order to protect himself from objects' dropping due to machine running.**

Assembled tools affect tractor behaviour on the road, its stability, its steering and its braking capability when they are carried.

In order to avoid overbalancing, loss of stability and control of the tractor, go on always at a reasonable speed, particularly if there are uneven grounds or steep slopes.

Before connecting the tool to the three point hitch, position the tractor's safety device so that the lifting device cannot rise and lower itself involuntarily and/ or accidentally.

The three-point hitch of the tractor and of the machine must match perfectly or be adapted by contacting MASSANO Snc.

In the area of the rear lift arms of the tractor there is a risk of injury due to crushing and cutting points: connect and disconnect the machine only on firm and flat surfaces. In order to do all the operations outside the control station of the tractor you have to switch off the engine, pull the hand brake, remove the ignition key from the panel and keep it.

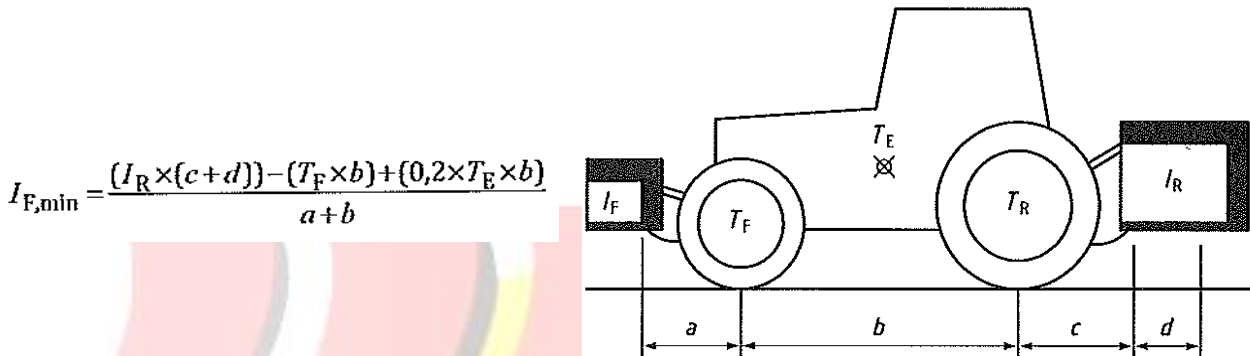
Use the external lift control following the information contained in the Use and Maintenance Book of the tractor operating with extreme caution.

When transporting the machine, make sure that the linkage's lateral catch of the tractor's lower lifting arms is completely locked.

## 8.2 CHECK OF TRACTOR'S LIFTING CAPABILITY AND STABILITY

Before connecting the machine to the tractor, check the lifting capability and stability of the tractor, using the following formula and if it is necessary (and if it is possible) previously apply the ballasts.

In order to determine the total weight of the machine it is necessary to add the weight of all its components.



### Legend:

- $T_E$  (kg) – Tractor mass.
- $T_F$  (kg) – Front axle load of unladen tractor.
- $T_R$  (kg) – Rear axle load of unladen tractor.
- $I_R$  (kg) – Combined mass of rear equipment capacity/ rear ballast.
- $I_F$  (kg) – Combined mass of front equipment capacity/ front ballast.
- $a$  (m) – Distance from the barycentre of front equipment capacity / front ballast to front axle centre.
- $b$  (m) – Tractor wheelbase.
- $c$  (m) – Distance from the rear axle centre to the lower link ball.
- $d$  (m) – Distance from the lower link ball centre to the barycentre of the rear equipment capacity/ rear ballast.

**DISTANCE D WAS CALCULATED ON THE BASIS OF MACHINE'S MODEL. PLEASE NOTE TO THE FORMULA THE DISTANCE REGARDING THE STONE BURIER YOU PURCHASED.**

**RSG = 0,80 MT + 0,30 MT IN CASE OF MOTORISED ROLLER.**

**RSL = 0,80 MT + 0,30 MT IN CASE OF MOTORISED ROLLER.**

**RSC = 0,90 MT + 0,30 MT IN CASE OF MOTORISED ROLLER.**

**RSE = 0,90 MT + 0,30 MT IN CASE OF MOTORISED ROLLER.**

**RSE PLUS = 1,00 MT + 0,30 MT IN CASE OF MOTORISED ROLLER.**

### 8.3 CONNECTION TO THE TRACTOR'S THREE-POINTS HITCH

The stone-burier can be connected on tractors equipped with three-point hitch.

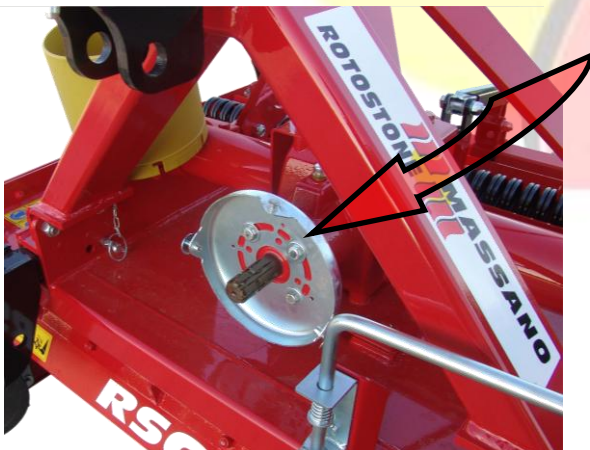
Light the working area in case of poor visibility and make sure that there is nobody within 5 mt from the hitching point.



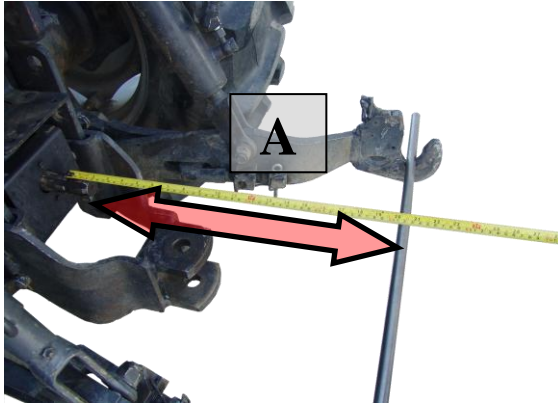
Arrange the lifting bars of the tractor by opening the hooks of connection system in order to connect the machine (See Manual of use and maintenance of the tractor used).



Insert (if required by the tractor's lifting) the balls in the 3 connection points of the machine by pulling out the connecting pins and placing the balls. Now secure the pins blocking them using the anti-extension thorns.



Remove the protection of the P.t.o. of the machine, using a 13 hex wrench.

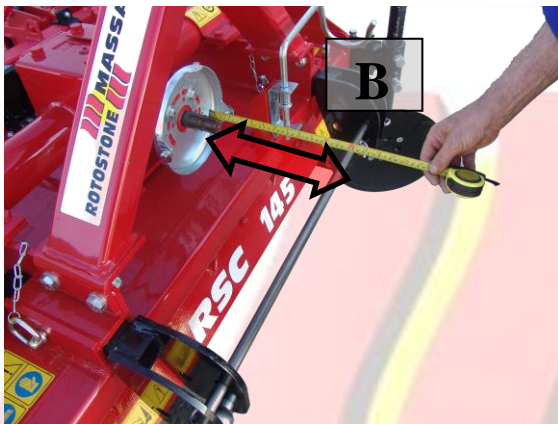


### A Distance

Place the lifting bars of the tractor to obtain a distance from the ground equal to the distance of the P.t.o. exit.

Measure, with a bar, the distance between the centre of the lower bars' hooking point of the lifting system and the final part of P.t.o. exit of the tractor.

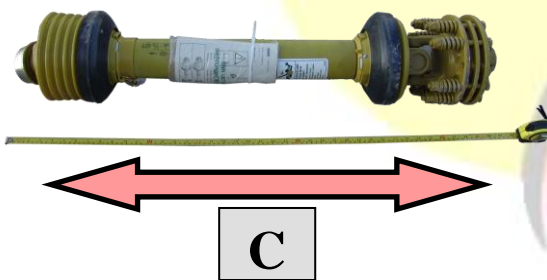
This measurement, indicated by the letter (A), changes depending on the type of tractor used.



### B Distance

Measure, with a bar, the distance between the final part of P.t.o. exit of the machine and the hole of the connection point of the machine to the tractor.

The measurement of the distance must be calculated with the properly adjusted connection bars as reported in section 10.2.2 and according to the features of the tractor used.

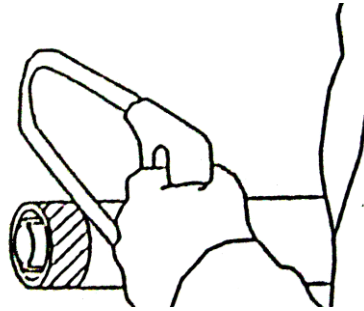


### C Distance

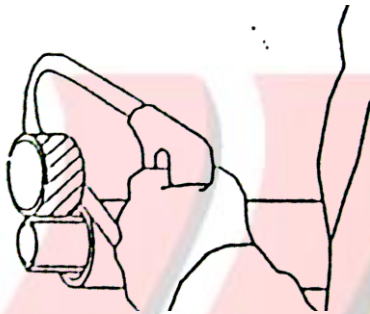
Do the addition between A and B distance. The result must be 4 inches less than C distance, which is equivalent to the total length of the completely closed cardan shaft.

If the result of A+ B is more than the C distance, you have to shorten the cardan shaft according to the instructions below.

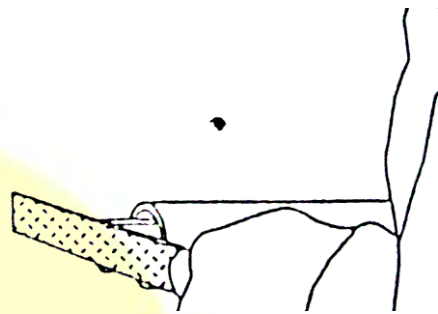
If the Pto shaft is too long, first of all fairly cut the outer plastic protection tubes (1) and then the inner metal tubes (2). Then deburr and lubricate (3).



(1)



(2)



(3)

**ATTENTION:** when the cardan shaft is completely open, the two tubes must overlap at least 1/3 of their length, while when it is in position of minimum length there must be present 10 cm of free light.

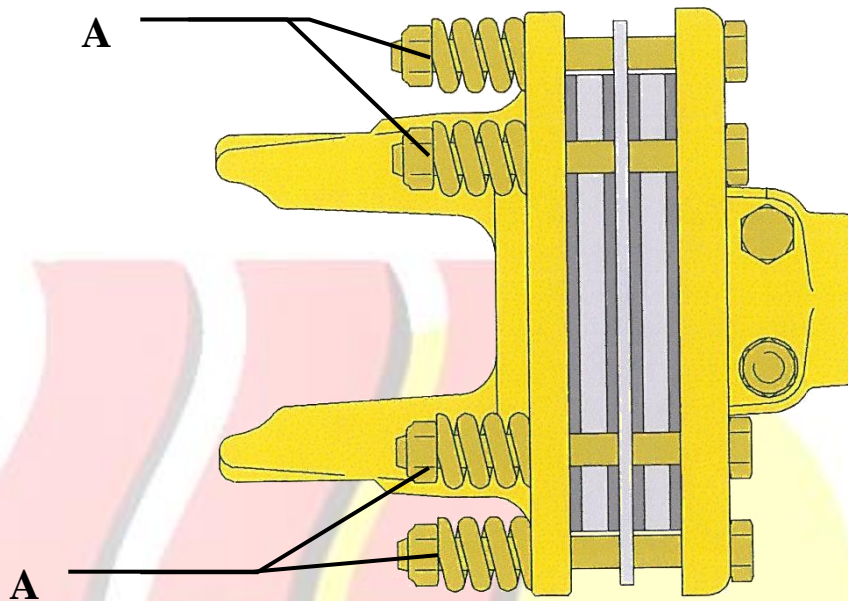


### 8.3.1 Adjustment of the cardan shaft with clutch

The cardan shaft can have a safety clutch in order the machine does not receive overloads or excessive efforts during its use which are dangerous for the transmission components. The clutch is pre-adjusted to an average force.

If during use you notice an excessive slipping of the device, tighten of a turn at a time the nuts that hold the springs (see point A).

Adjust the nuts evenly by acting on all the nuts.



**ATTENTION:** if despite this, the clutch slips when using the machine it is necessary to replace the discs' clutch.

If the clutch does not slip even in case of overload and excessive effort, unscrew evenly and gradually all nuts, ensuring the operation in case of overloads.

After you have adjusted A nuts, check the clutch after 300 meters of work. If necessary, repeat the operation, acting a turn at a time.

**Do not tighten the nuts eliminating the clutch function to avoid damages in case of overload.**

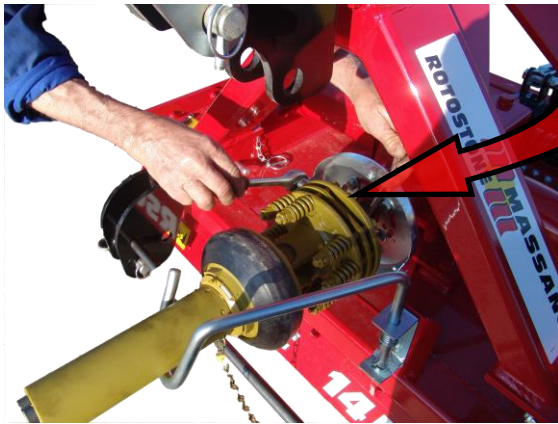


**WARNING!**

For RSG- RSL- RSC- RSE :

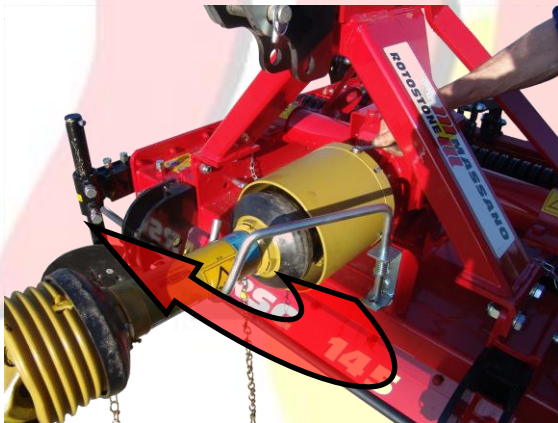
Check the RPM of the P.t.o. of the tractor is 540 rpm, since the machine is designed for this speed.

After adjusting the drive shaft:



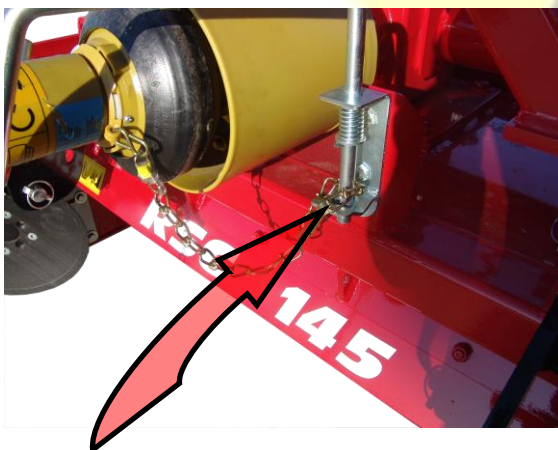
Check the assembling direction of the cardan shaft according to the information stamped on its protection and fix the universal joint ½ "side machine" connecting it to the p.t.o. gearbox of the bed former.

Tighten with a hexagonal wrench ensuring the two screws to the output shaft, thereby locking the drive shaft of the machine.



Put back the yellow plastic protection together on the gearbox using the appropriate bolts and tighten them with a hexagonal wrench.

Insert the second half of the drive shaft and lay the complete P.t.o. on the support bracket mounted on the machine.



Fasten the plastic pto shield to the pto support bracket by means of the chain as shown in the foto to the left.

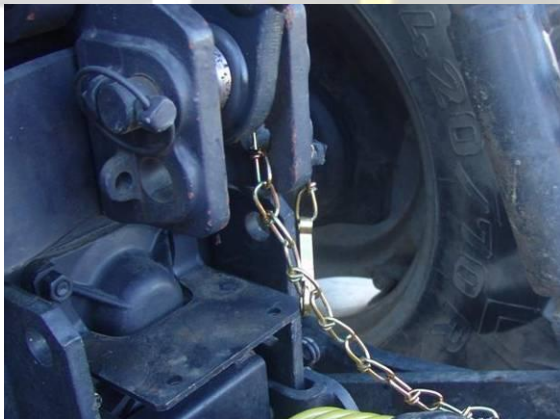




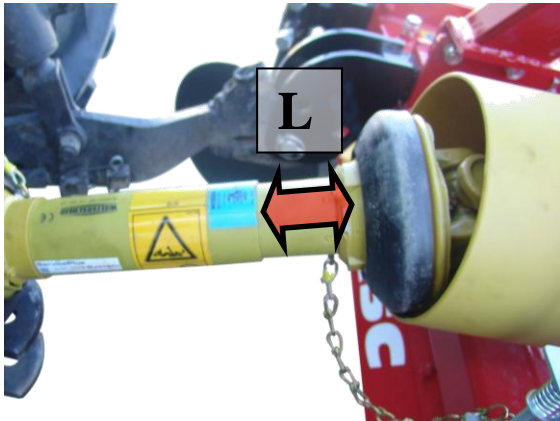
Connect the machine to the tractor using the lower arms linking the tractor with the connection points of the machine, then connect them and secure them (see use and maintenance book of the tractor).



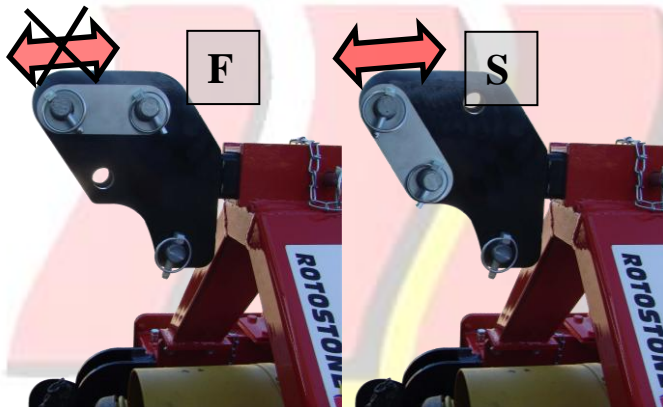
Remove the drive shaft from the support hooking the drive shaft to the stub shafts of the tractor, carefully checking the correct coupling through the button or the ring nut.



Connect the plastic shield to the tractor with the chain preventing in this way the rotation during use. This step will ensure long life to the protections that cover the cardan greatly reducing the risk of accidents for the user and/or other people.



With the stone burier in flat position and the stub shafts of the tractor P.t.o. and gearbox at the same height, check that the complete Pto shaft is extended 2"- 4" from its closed length when connected to allow the P.t.o. halves to telescope in and out during lifting by the tractor.



Connect the top link of the tractor to the machine choosing the floating position (S) in the case of uneven ground or the fixed position (F) in which the machine will remain horizontal under all conditions.

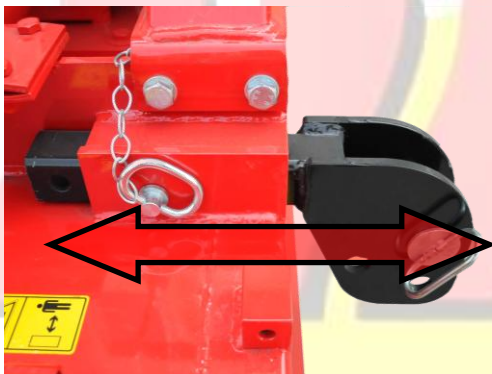


In case of connection with small tractors, use the connection point located in the lower part of the top link, in order to facilitate the lifting of the stone burier from the ground, while ensuring the correct angle of the machine.

Now insert all klik-pins to fix the hitch pins in place.



Check carefully that, while lifting the machine, the front discs do not bump against the wheels of the tractor. In the case the disc touch the tractor's wheels move away the connection points of the machine.



To properly move away the connection points of the machine, disconnect the machine, remove the locking pins of the hitch pins, remove the pins and reposition the connection points.

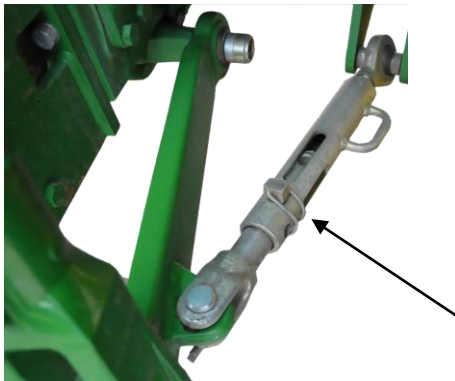
Once it has been adjusted replace the pins locking them using the click pins and connect the machine, proceeding with the operations described below.



Connect the hydraulic pipes to the tractor carefully checking the color code on the tractor valves.

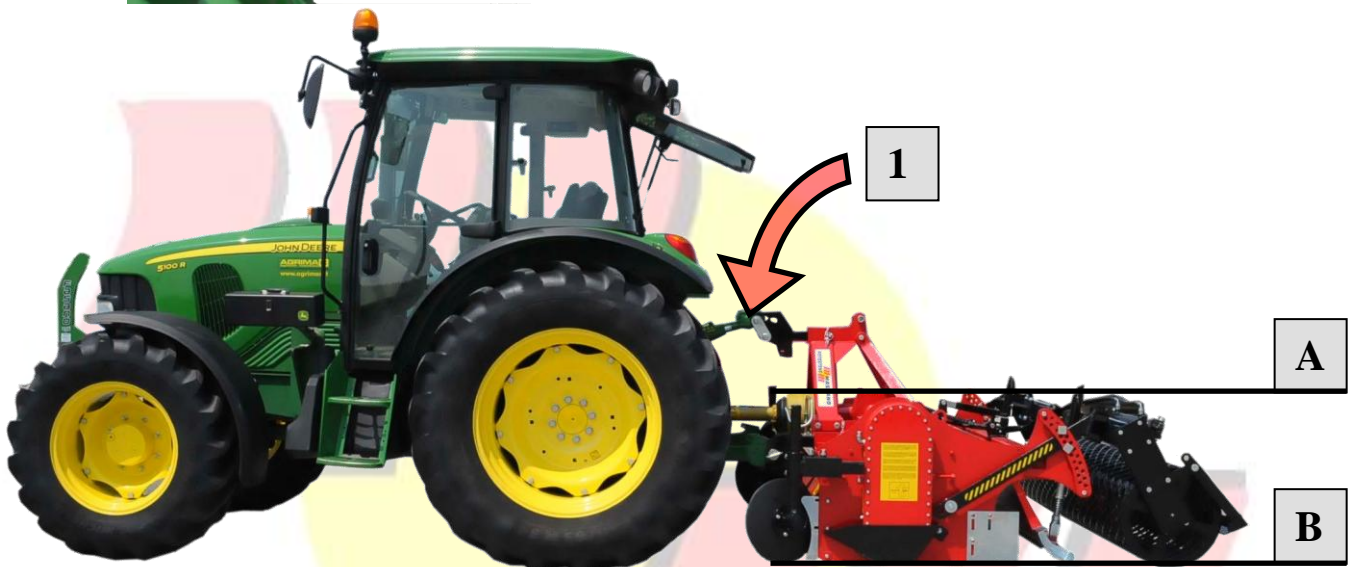
Remember that the wrong connection of the machine's hydraulic pipes could cause an inversion of the controls given by the tractor.

If the hydraulic pipes are not connected to the tractor, they must be placed on special stands on the machine.



Once you have finished to connect and adjust the machine, lock the horizontal movement of the bars of the lift acting on the special tighteners parallel to the tractor.

This arrangement should be put in place to prevent any crosswise movement of the machine, that is dangerous for the stability of the machine - tractor.



Adjust correctly the top link of the tractor to ensure that the top of the machine (A) is parallel to the ground (B).

This is very important in order to obtain a parallelism between the P.t.o. stub shaft of the machine and tractor.

Work in these conditions means limit the stress on the P.t.o., extending the life of the cardan shaft and of the stone burier, achieving a better quality and more profitable work.

## 9 TRANSPORT BY ROAD



### ATTENTION!

For road transport it is necessary to:

- Make sure that the tractor used for road transport is properly certified and have all the documents to circulate on road.
- Have a valid driving license for the tractor used on road.
- Check the cleanliness of the tires before going on public roads.
- Follow carefully the highway code in force.
- Do not carry the machine and do not drive the tractor under the influence of alcohol, medicines or drugs.
- Install appropriate size warning signs for road traffic (in case the machine is larger than the tractor to which it is connected).

Do not lift the machine too high, the drive shaft must not exceed 30 ° tilt with the power take off. Check, however, that during transport, the machine do not touch the road.

If the width of the machine cover the rear lights of the tractor you must install lights on the back of the machine.

Check that the drive levers of the hydraulic lifting system are locked, to avoid the fall of the machine during transport.

Together with the observance of the rules it is important to remember that when driving on public roads close attention must be paid to the choice of an appropriate speed, especially with the vehicle-led with strong overhangs front and/ or rear or when the road looks crowded, twisty, bumpy or sloping.

Coming out on the road after working, check the cleanliness of the tires and of the working parts, to avoid smearing with ground or other material the road surface.

Make sure that the lower links of the tractor's three point lifting are completely blocked by side tighteners, to avoid dangerous lateral swings of the machine during the transport



## 10 BEFORE STARTING WORK

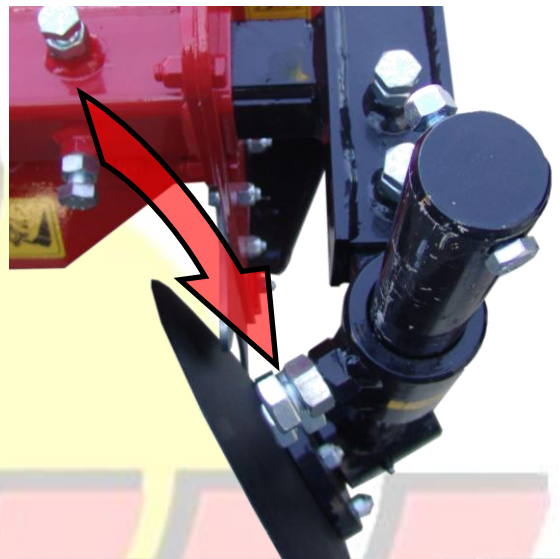
Before using the machine you must adjust it allowing a right use of the machine and improving the quality of the work done by it.

### 10.1 SIDE DISCS' ADJUSTMENT

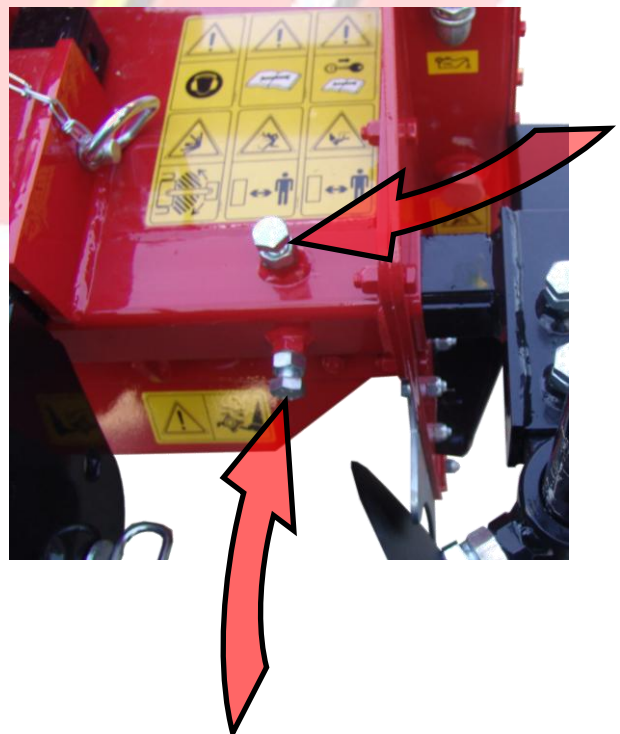
Follow the instructions below:

- Release of the lock nut,
- Loosening of the fixing bolt,
- Adjusting of the component set by the bolt (or bolts)
- Tightening the fixing bolt and the lock nut

To adjust the lateral discs you must loosen the bolts for the vertical adjustment.



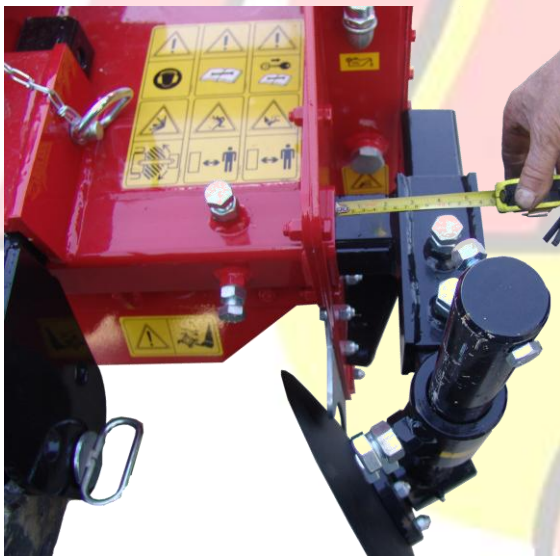
the bolts for the lateral adjustment.



And the bolts for the front adjustment.



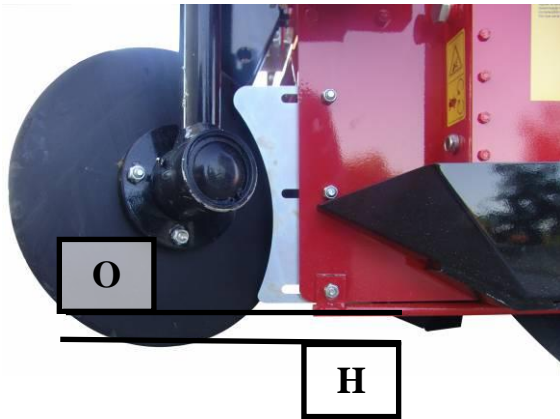
**For a correct adjustment and side discs use follow these basic rules:**



Slide out, from the transmission side, the disc support arm about 5-6 cm, securing it subsequently through the tightening of bolts and clamping counter.



After loosening the bolts holding the vertical shift, rotate the disc in order to change the angle and the depth of the tool.



To adjust properly set the side disc to a working depth (H) 1" inch lower than the line (O). During work this distance may change due to the needs.



Make sure that the disc is rotated so you can create a furrow at least as wide as the width of the chain cover (A).

This furrow allows the lower part of the casing to not touch the ground while working guaranteeing a greater depth of work and a better finishing of the worked edges.



This photograph clearly represents how the disc works. It makes a furrow to allow the skid to not touch the ground, guaranteeing a constant and greater depth of working.



## 10.2 GENERAL MACHINE ADJUSTMENTS



Before using the machine check some important points that determine the correct operation and reduced stress on its parts during work.

### 10.2.1 Adjustment of the parallelism with the ground

Lift the stone burier from the ground about 14 inches and verify that it is parallel to the tractor and, consequently, to the ground on which it operates.

Below you can see the no alignment between the machine and the tractor, so it will be necessary to adjust the appropriate side arms of tractor's the three point hitch (check the tractor's use and maintenance book)

Adjust the lower arms of the three point hitch of the tractor until you get to a perfect alignment between the machine and the tractor.

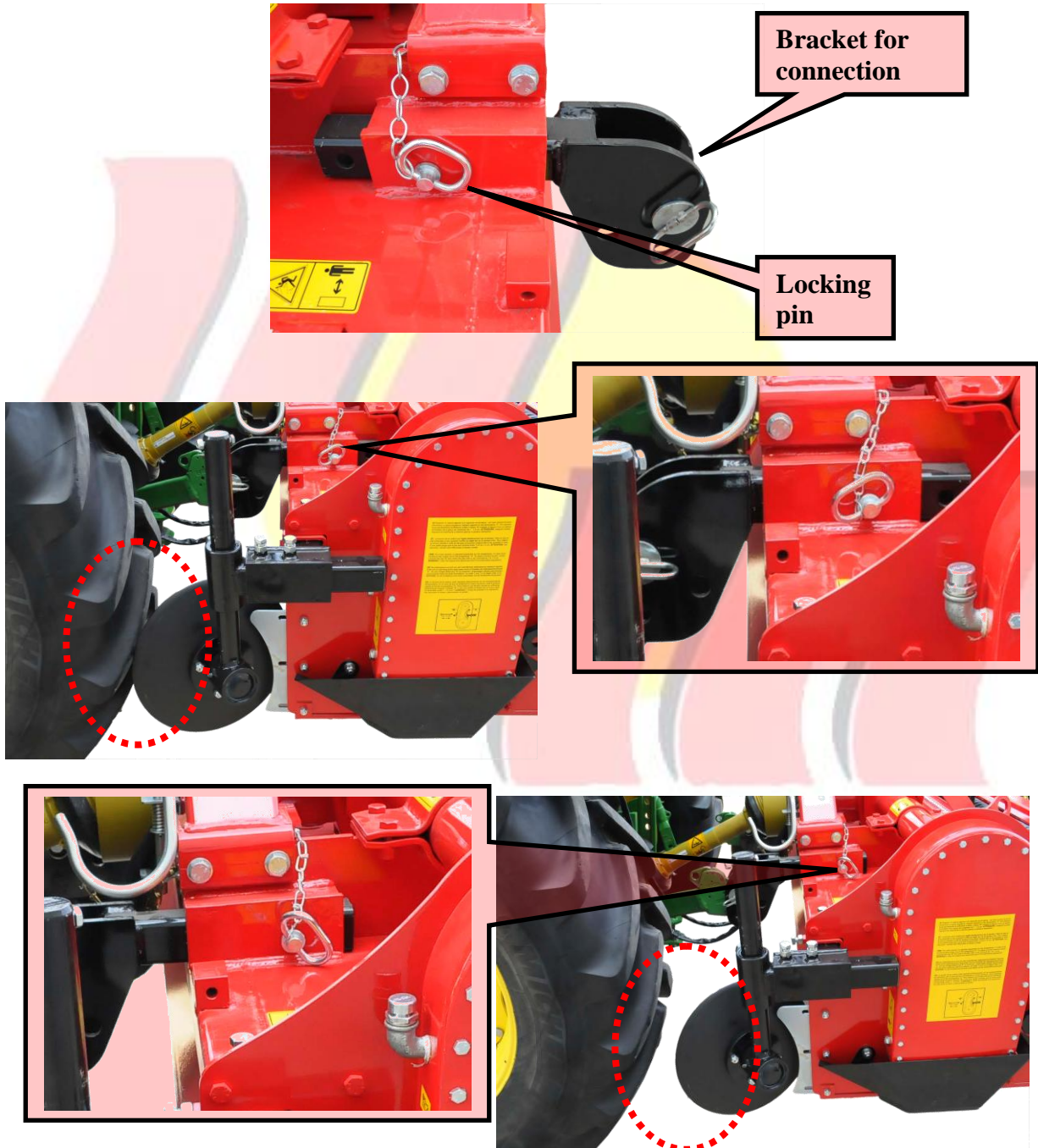


### 10.2.2 Adjustment of the distance from the tractor

The machine is equipped with special brackets for connection to the tractor that allow, through adjustment, to change the distance between the machine and the wheels of the tractor to avoid possible contacts during the lifting for the transport or during work.

The adjustment of the connecting brackets' position and of the machine, is accomplished through the removal of the safety pin and the locking pin, followed by repositioning of the bracket if necessary. Once you placed the bracket in the desired position, lock it positioning the locking pin and the safety pin.

The adjustment operations must be performed in a symmetrical manner on all three connecting brackets of the machine.



### 10.2.3 Adjustment of the rear roller position

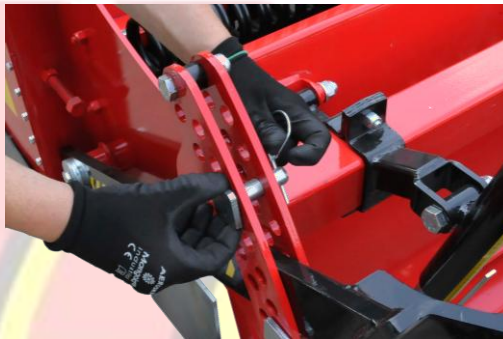
The rear roller allows the adjustment of machine's working depth.

It allows, through the positioning of the locking pins in the perforated flanges, to be locked or bound in certain positions that, during work will determine the position of the machine as to the ground.

The adjustment operations of the rear roller have to be made with the machine connected to the tractor, in order to ensure the stability of the machine.

For the adjustment of the rear roller you have to:

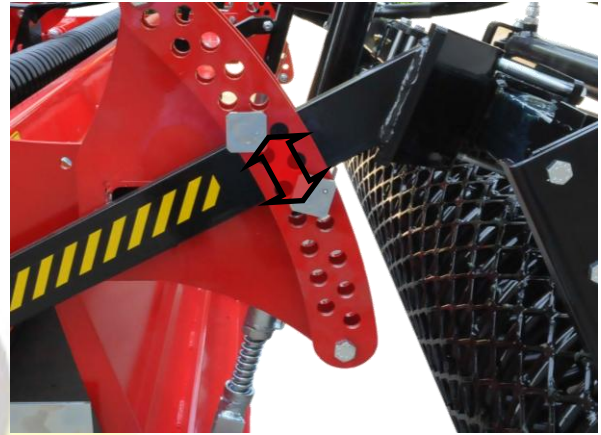
- Slightly lift the machine in order to avoid the rear roller touching the ground.
- Pull the epingle and the safety pin out in order to release the roll on the upper side and place it at the desired height (the positioning of the locking pin will determine the roller position during work)



- Begin the standard working with the machine, proceed for few metres and check the obtained working depth. During this operation, indeed, the machine will enter into the ground until reaching the previously setted blockage through the pin of the upper block. Now check the work done, if satisfying proceed finishing the adjustment, otherwise repeat the procedure from the first step described.  
Note: in RSG - RSL version the perforated roller guide has a different configuration but the operating principle does not change.



- Insert the lower check pin in the desired position and lock it with the suitable epingle. The positioning of the safety pin in the first free hole below the supporting bar of the roller fully bind the rear roller's movement, both during lifting and during lowering of the machine. In order to obtain a floating position of the roller it is necessary to space out the pins.



#### 10.2.4 Adjustment of the rear fins (levelling bar)

The rear fins of the machine have a double function during work:

- The first function, the most important, is qualitative. As a matter of fact, a smaller opening of the fins prevents the soil from leaking out from the machine allowing a more thorough work; a greater opening of the fins, instead, allows the ground to come out freely by increasing production capacity but reducing the quality of the performed work.
  - The second use is functional. The position of the rear fins allows a soil leveling, improving the work of the rear roller and creating a perfect surface on the ground worked by the tools.
- To adjust the rear fins you have to rotate the cranks: the clockwise rotation allows the opening of the fins, while a counterclockwise rotation allows their closing. A graduated rod helps checking the position during adjustment.



### 10.2.5 Adjustment of the side straps

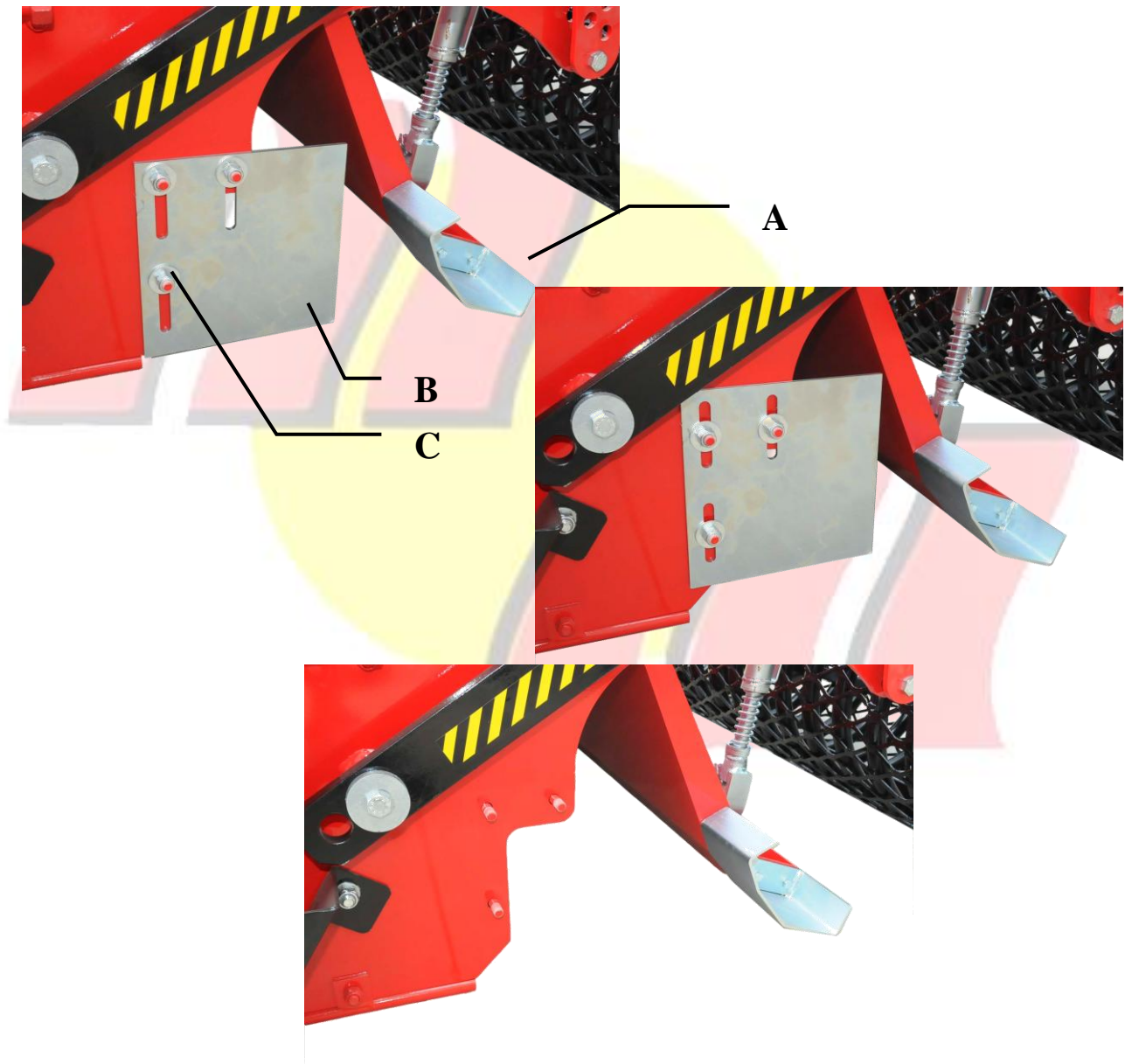
The side straps (A) on the machine fill the furrows previously opened by the front discs in order to allow the passage of machine's skids and its casing cover.

The filling of the furrow takes place thanks to the ground worked by the machine which, through the adjustable positioning or the side straps' removal, is adjusted and conveyed inside the space that have to be filled in.

These straps (B) have slots (C) that allow a vertical adjustment; loosening the fixing nuts and moving the strap upwards you will get a greater passage of the ground, while moving it closer to the ground the passage will be reduced.

If necessary you can completely remove the fixing nuts and the strap, allowing in this way the greater passage of ground within the furrow created by lateral discs.

After the straps' moving, tighten the nuts firmly fixing the obtained position.



### 10.2.6 Adjustment of the selection grill

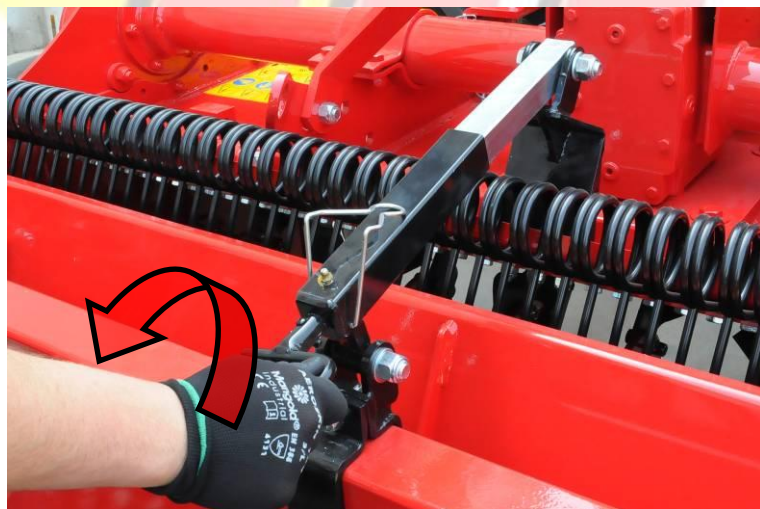
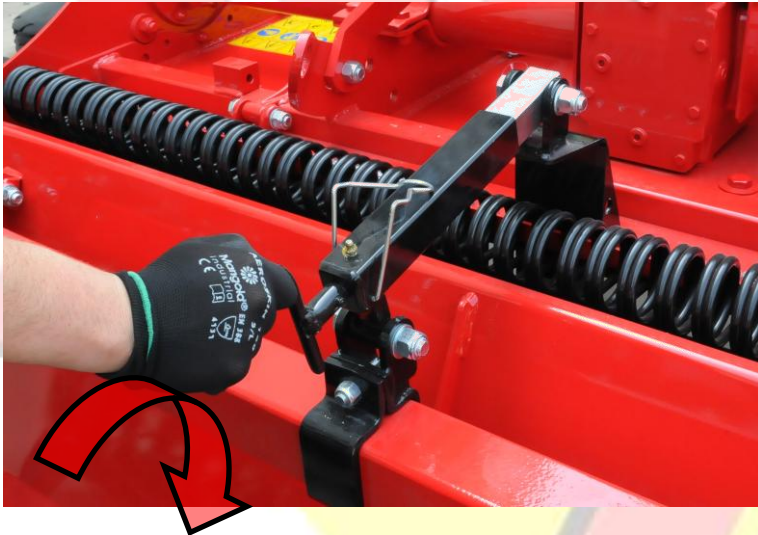
The adjustment of the rear selection grill by means of the crank must be carried out according to the degree of humidity of the soil and to the working depth.

When the ground is dry the grill must be left perpendicular to it (closed position), in this way its function of sieve will allow to separate stones, clods and vegetable residue from the fine soil. Increasing the working depth we suggest to tilt the selection grill in order to reduce the power's absorption of the machine as to the tractor.

If the soil is moist and wet it is better to work with the opened selection grill in order to allow a regular soil's flow avoiding obstructions, additional and unnecessary power's absorptions.

If you work on fields with grass residues we suggest to adjust the inclination of the grill to prevent obstructions due to the accumulation of grass, especially on the top of the springs.

To adjust the selection grill position you have to rotate the horizontal crank on the machine. The clockwise rotation allows the closing of the grill, while the counterclockwise rotation allows its opening.



## 10.2.7 Adjustment of the scraper

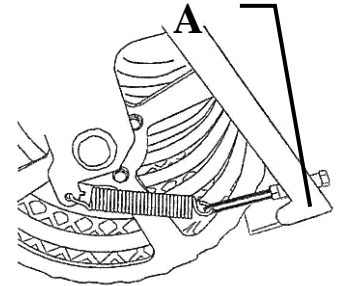
### Perforated roller

The perforated roller, available for any stone burier, allows to obtain an extremely soft excellent seed bed, perfect for transplanted in cube crops, or for sowing small seeds such as grass, salad, carrots, onions, etc.

The roller, made of a particular smooth grill, allows to work also on wet ground thanks to the use of a scraper adjustable by means of a pressure screw, as you can see in the picture.

To adjust the pressure of the scraper you must loosen the nut placed on the adjustment screw (A) and rotate it according to your needs:

- A counterclockwise rotation will cause a pressure decrease of the scraper.
- A clockwise rotation will cause an increase of the pressure of the scraper.



When you have finish to adjust the screws (A), tighten strongly the nuts.

**The adjustment screws must be carried out symmetrically on both sides of the machine.**

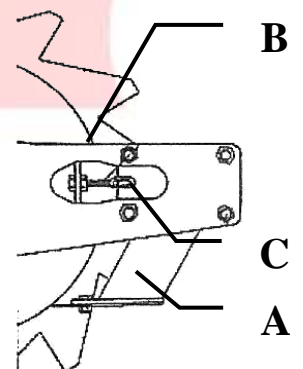
After the adjustment, start using the roller on a compact and cleaned surface checking that the scraper does not cause an excessive pressure on the roller, causing excessive wear of parts or the blocking of all or part of the roller. In case the pressure of the scraper is excessive, adjust it another time as previously described.

### Packer roller

Paker roller is used as an alternative to the previously described system. This type of roller is used for especially moist soils and for cereal crops.

Before using the machine it is necessary to check that all scrapers (A), assembled on the appropriate bar, are at a distance between 1 and 3 mm.

If not, loosen the four locking bolts of the bar on the side (especially C) and subsequently through the upper tightener (B) adjust the position. After the adjustment of the scraper, tighten the four locking bolts of the skid (C) and the tightener (B).

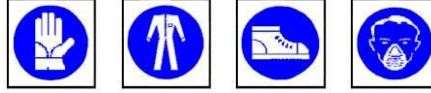


**The adjustment must be carried out symmetrically on the entire machine**

## 11 USE OF THE MACHINE

### ATTENTION!

Use always appropriate personal protective devices (safety shoes, work gloves, casing for hearing protection and anti- dust mask).



Before using the machine make sure that there are no people or animals within 50 metres.

Before starting work, you must adjust the machine, in order to obtain an excellent working position (See section 10).

Once in the field check that the P.t.o of the tractor is correctly adjusted to a speed of 540 rpm and follow the guidelines.

- Lower the stone burier in order to keep it at a height of 5 cm from the ground.
- Engage the low gear as to the forwarded speed suggested in the "Technical Data" section keeping it for the first 300 metres of work, during this distance check carefully the work of the machine.
- Set the tractor's P.t.o. going adjusting its engine to a speed between 1500 and 2000 rpm.
- Check that the lifting system of the tractor is not in position of controlled floating stress (function used only for plowing), check the User and Maintenance Book of the tractor used.
- Lower at the end the lift lever of the tractor and at the same time go on with the tractor in order the machine can enter in the soil, avoiding abrupt maneuvers.
- During the first 300 metres adjust, if necessary, the side discs, the selection grill, the side straps, the leveling bar and the rear roller until reaching an excellent level of work according to your needs.
- Before going out from the tractor's cabin turn off the engine, pull the hand brake, wait for the stop of all moving parts involved in the process, remove the key from the panel and keep it.
- Familiarize several times with the machine until you find the correct forwarded speed and the correct rpm of the P.t.o. that determine the right working of the stone burier.
- Always consider that a greater forwarded speed will cause a reduction of the burial ability.
- With very stony soils it is suggested a tractor's engine speed between 1500 and 1800 rpm.
- With clay soils or soils without stones it is suggested a tractor's engine speed between 1800 and 2000 rpm in order to ensure a perfect finishing.

Following carefully the above instructions you will get a perfect work in all conditions.



Check also that the P.t.o. rotation of the tractor is the same as the machine, see the label.

The rear door, in addition to contain clods already worked by blades, allows you to have a well-leveled and homogeneous surface after tillage. If you lift the hood, the equipment cannot break the clods and the soil is not flat and homogeneous.

With a very stony soil we suggest remove big stones (over 35 cm) that could cause serious damages to the machine before using the stone burier.

When using the stone burier in this situation we suggest to adjust the working depth according to the burying depth you would like to achieve.  
A low speed of the tractor together with a greater depth of machine's rotor allow a better quality of work.



**WARNING!**

**During work it is possible that stones or other things on the ground or picked up by blades are raised by the machine.**

**Constantly check that there are no people or pets within the range of the machine.**

During work do not turn or go into reverse.

**Always lift the machine to change direction and turn, before switching off the P.t.o.**

The average speed used during the work with the stone burier is 1.5 - 2 km / h

During use, the machine can raise dust, in case of dry soil. We suggest to use tractors with cabin equipped with filters in the ventilation system or use suitable respiratory protections such as anti- dust masks or masks with filters.

If you have to service the machine at work, disconnect the tractor's P.t.o., lay the machine down with care on a flat and compact soil, turn off the tractor and remove the ignition key.

An extended use of the machine can cause the gearbox's heating. Before service, make sure that the gerabox is cool in order to avoid burns.

### 11.1 REAR ROLLER POSITIONING

During the use of the machine in open field, the rear roller (if adjustable) must be positioned in order to be able to completely remove the created edge lines.

To do this, the roller must maintain a central position, stretching out in equal measure from both sides of the machine.

During works inside greenhouses, near fields or with reduced working space it is possible, through the driving levers of the distributors to which the hydraulic pipes of the machines are connected, to change the position of the roller according to the needs.

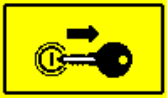


## 12 MAINTENANCE

Following you can find the suggested criteria for the routine maintenance of the machine, based on our business experience, advices and suggestions of our customers.

These criteria are not exhaustive, they can be further integrated with the cooperation of the customers we thank in advance.

A good maintenance keeps down the cost of operation of the machine and allows to the machine to work better.



**In case of failure, stop immediately the P.t.o., remove the ignition key, get off the tractor to check the problem and eventually intervene on the machine.**

### Preliminary notes

Before using the nipples heads, you must previously clean them carefully from mud or other debris and inject lubricating grease:

Before starting maintenance, you must do the following operations:

- Disconnect the tractor's P.t.o.;
- Turn off the tractor engine, pull the hand brake and remove the ignition key from the dashboard;
- Use always the appropriate personal protective equipment (safety shoes, work gloves, eye protection);
- Prepare all accident prevention rules for the type of operation you are doing.
- Use suitable support systems correctly sized before operating below suspended parts taking into account their mass.

Every 10 - 15 hours carry out systematically the following checks and adjustments:

- The tightening of screws and nuts;
- The check of wear and tools entirety;
- The entirety of the guards;
- The tension and the efficiency of the transmission chain.
- Monitoring of lubricants levels;
- The greasing of the parts marked by the special sticker.



### 12.1 ORDINARY MAINTENANCE

To ensure a good work of the machine, follow these rules.



#### **ATTENTION!**

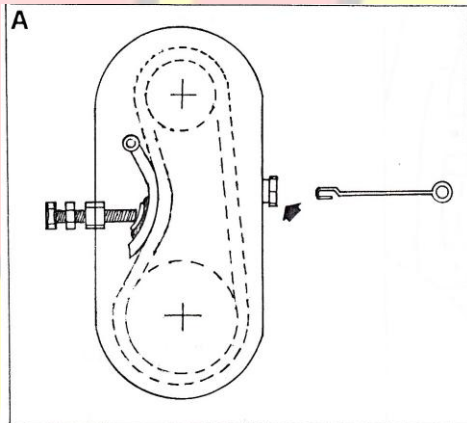
**Do maintenance on the machine while disconnected from the tractor, lying securely on stands.**

### 12.1.1 Every 8 hours work

- Check the tightness of the bolts securing the blades, the flanges and the rotor
- Grease the side house bearing of the rotor
- Grease roller bearings
- Grease the side discs house bearing (if the machine is equipped with)
- Grease the drive shaft's crosses (see the drive shaft's book)

### 12.1.2 Every 50 hours work

- Check the tension of the side chain of transmission.  
The adjustment operation of the chain takes place by rotating the adjusting screw. In case an excessive play is revealed, it will be enough to adjust the chain tensioning screw. To get the right tension simply unscrew the cap shown in Fig. A and with a dipstick check that the play is between 3/4" and 1".



- Check the amount of oil in the gearbox and if necessary raise the level marked on the rod.
- Check the level of oil in the side chain transmission.

#### Recommended lubricant:

- Central gearbox and the side transmission: Oil OMA LA EP 680 or equivalent.
- Greasing points: Grease SHELL RETIMAX WB2 or equivalent.

For technical specifications on lubricating oils and greases follow the table on the cover

Type	Central gearbox	Side Transmission
RSG	2,5 Kg	2,5 Kg
RSL	2,5 Kg	2,5 Kg
RSC	2,5 Kg	3 Kg
RSE – DV 817	7 Kg	3 Kg
RSE – R 160	4,2 Kg	3 Kg
RSE – PLUS - CHIAN	9 Kg	3 Kg
RSE – PLUS - GEARS	4,2 Kg	8 Kg

### 12.1.3 Every 200 hours work

- Clean with solvents or oil the gearbox and replace the used oil with with OMALA EP 680.
- Clean with solvents or oil the side chain transmission and replace the used oil with a new one type SHELL OMALA EP 680.
- Dismantle and clean the clutch discs of the cardan shaft (see drive shaft's book)

## 12.2 ROTOR WITH BLADES

The worn out or broken blades must be replaced using MASSANO high strength bolts and nuts. When replacing be carefull to maintain the previous arrangement.

### 12.2.1 Replacement of blades

The replacement of the blades must be done by placing the Stone Burier on two solid side stands correctly sized taking into account the mass of the machine reported on the identification plate and in this Use and Maintenance Book.

The repalcement must be done keeping the machine, and especially the drive shaft, disconnected from the tractor.

To remove the blades, unscrew and remove the nut with a wrench, then remove the bolt and the blades to be replaced.

Take the new tool and place it near the connection holes, insert the bolt, the nut and tighten. Then block the nut and the blockage with the dynamometric wrench specially adjusted according to the diameter of the screw.

Use the following table:

Screw diameter (*)	Type	Tightening torque
12mm	RSG	180N/m
14mm	RSL RSC	220N/m
16mm	RSE RSE PLUS	240N/m

**Use only the bolts supplied by MASSANO Snc.**

## **Gearbox** (Type RSE 2013 – RSE-PLUS only)

Gearboxes DV817 (RSE type- assembled until 2013) allow you to change the speed of the rotor simply reversing the gears from a pair or replacing the pair with others.

With the gearbox DV733 (RSE PLUS type ) simply move the control lever.

The rotation speed of the rotor blades in RSE PLUS with P.t.o. at 1000 rpm is the following:

I gear 205 rpm

II gear 245 rpm



**ATTENTION!**  
Run the gearbox only with the tractor turned off, the ignition key off and all parts of the machine arrested.

## **12.3 GEARBOX (TYPE RSE, RSE PLUS ONLY)**

### **12.3.1 Replacement of gears DV 817 (type RSE, RSE PLUS only)**

Switch off the tractor engine and switch off the drive shaft from PTO of the tractor.

Inside the gearbox there is a pair of gears, remove the cover unscrewing the bolts shown in photos with a hex wrench 17.



**PAY ATTENTION TO THE OIL'S LEAK. IT IS SUGGESTED TO TILT THE MACHINE FORWARD PAYING ATTENTION TO THE HOT ITEMS.**

To reverse the gears extract them from their relative position and exchange their position, checking that the hubs are adjacent to the gearbox's bearings.

To replace the gears with other ones follow the same procedure.

The gears in this box are only two: **Z 27 and Z 29**

Each machine is equipped with gear Z27 assembled on the shaft connected to the PTO of the tractor. With this configuration, the rotor will have the following speed's rotation:

With P.T.O. to 540 rev/min

Gears 27 / 29 = 187 rev/min

Gears 29 / 27 = 215 rev/min

With P.T.O. to 1000 rev/min

Gears 27 / 29 = 346 rev/min

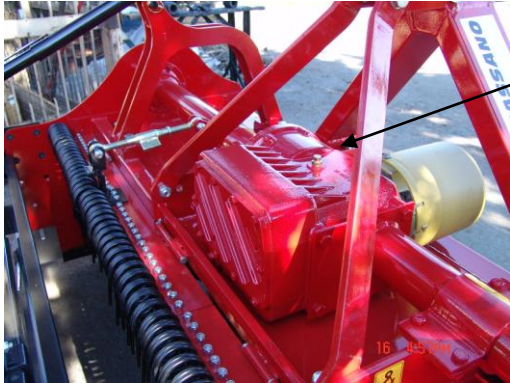
Gears 29 / 27 = 390 rev/min

To achieve different speed it is possible to ask for other gears with a different number of teeth. Do not hesitate to contact Massano snc.

### 12.3.2 Check the oil level

To check the correct level of oil inside the gearbox follow the pictures below.

Fig. A = Gearbox type DV 817 by unscrewing the oil breather plug, check the level with the dipstick. (Remember to keep the stone burrier always parallel to the ground).



**FIG. A**

Fig. B = Gearbox type DV 733 unscrew the oil breather plug that indicates the minimum level (Remember to keep the stone burrier always parallel to the ground).



**FIG. B**

### 12.3.3 Oil's replacement

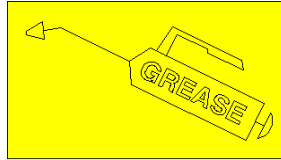
To replace the oil inside the gearbox (or exchange) is necessary:

- To completely drain the oil inside the gearbox by unscrewing and removing the drain plug.
- To tighten the oil breather plug previously removed by checking the correct placement of the seal.
- To Insert the oil inside the gearbox

### 12.3.4 GREASING OF MECHANICAL PARTS

Every 8 hours work, you have to grease all bearings, crosses and the drive shaft.

**The machine is equipped with pictograms placed on each greasing point.**



You have finished to grass a single part when there is a slight overflow of grease from the side junctions of the component. Now stop the grease injection avoiding damage seal parts.

Grease a component only after a thorough cleaning of debris and dirt. The presence of dirt in the injected grease could cause serious damages due to the great abrasive capacity.

### 12.4 ANALISYS OF THE PROBLEMS, TROUBLES SEARCH

PROBLEMS	CAUSES	SOLUTIONS
Uneven distribution	<ul style="list-style-type: none"> <li>• Too damp ground</li> <li>• Incorrect placing of the tools</li> <li>• Uneven connection to the tractor</li> </ul>	<ul style="list-style-type: none"> <li>• Wait for better conditions</li> <li>• Check the exact palcing of the tools</li> <li>• Check the connection to the tractor</li> </ul>
Noise level of the gearbox	<ul style="list-style-type: none"> <li>• Inner anomalies</li> <li>• Worn bearings or gears</li> </ul>	<ul style="list-style-type: none"> <li>• Contact Massano Snc or local dealer</li> </ul>
Excessive vibrations	<ul style="list-style-type: none"> <li>• Wrong placing of the tools</li> <li>• Foreign object trapped between the tools</li> </ul>	<ul style="list-style-type: none"> <li>• Check the exact placing of the tools</li> <li>• Remove the foreign object</li> </ul>
Clutch slip	<ul style="list-style-type: none"> <li>• Foreign object trapped between the tools</li> <li>• Excessive working depth</li> </ul>	<ul style="list-style-type: none"> <li>• Remove the foreign object</li> <li>• Reduce the working depth</li> </ul>
Premature wear of the tools	<ul style="list-style-type: none"> <li>• Too clayey ground</li> </ul>	<ul style="list-style-type: none"> <li>• Replace standard tools with special anti wear tools</li> </ul>
Presence of crop rests on the surface	<ul style="list-style-type: none"> <li>• Too dense vegetation</li> <li>• High pressure of the rear hood</li> </ul>	<ul style="list-style-type: none"> <li>• Use a shredder to reduce vegetation</li> <li>• Reduce the rear hood pressure acting on the handle</li> </ul>
Excessive power demand	<ul style="list-style-type: none"> <li>• High working depth</li> <li>• Undersizing of the tractor</li> </ul>	<ul style="list-style-type: none"> <li>• Reduce the working depth</li> <li>• Use tractor of adequate power</li> </ul>



## **13 - GUARANTEE**

### **13.1 DURATION OF THE GUARANTEE**

The manufacturer guarantees that its products are free from material and manufacturing defects for twenty - four (24) months from the delivery date of the machine.

## **WARRANTY CONDITIONS**

- 1) The obligation due to this warranty is limited to replacement and/ or repairing of components that, after inspection of one of our technicians, present material and manufacturing defects;
- 2) The damaged parts must not be changed, disassembled by unauthorized people, and also they must not have been subjected to misuse, negligence or accident;
- 3) The costs of manpower and transport for repairing or replacement of defective parts are not included in the guarantee;
- 4) No guarantee made by someone else than the manufacturer will be considered valid and binding;
- 5) The manufacturer reserves the right to make changes without warning, and, in this case, he does not assume any obligation to make such changes on products previously manufactured;
- 6) At delivery time check that the machine has not been damaged during transport and that it has got all parts, any claims must be done in writing within 8 days from the delivery date of the machine.

### **The warranty will be invalidated if:**

- 1) The failure is due to a manoeuvre error;
- 2) The failure is due to repairs done by unauthorized staff or the use of non original parts;
- 3) The customer has not follow the instructions contained in this book.
- 4) The customer exceeds the maximum allowed power shown in the technical features table.
- 5) The customer has not done an adequate maintenance in the friction clutch of the drive shaft.

## **14. SPARE PARTS**

Each machine is equipped with an identification plate affixed to the frame in the position shown in paragraph 2.2.1.

**The data shown on the identification plate are absolutely necessary for each request of spare parts.**