

Eng

English Language



Società Industriale Costruzione Macchine Agricole

Instruction Manual  
**CHIPPERS**

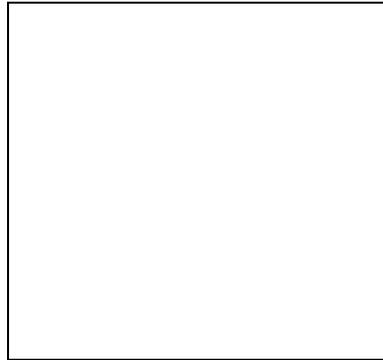
**ATTENTION**

Read carefully this manual  
before using the equipment

**EC-100**



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Sicma reserves the right to make any necessary changes without giving prior notice, in order to optimize the quality and safety features and does not commit itself to updating this manual every time a change is made.

This booklet provides a thorough and accurate description of the instruction and maintenance activities to be carried out on the mower you purchased. We congratulate you on your choice and urge you to thoroughly familiarize yourself with and follow the instructions contained in this manual. This will assure you a long, safe and trouble free working life for your mower.

**Sicma shall not assume any responsibility should problems arise as a result of lack of compliance with the instructions and/or operator's negligence.**

The manual is divided in chapters and paragraphs and the pages are numbered, thus offering accurate and precise information.

The requested information can be easily found by searching the key words or referring to the index.

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# GENERAL INFORMATION

## SYMBOLS

This booklet contains three "safety graphic symbols" to highlight as many danger levels or important information:



**It draws the operator's attention to situations which can jeopardize people's safety.**



**It draws the attention to situations which jeopardize the machine efficiency but not people's safety.**



**It highlights general information which does not endanger people's safety or the efficiency of the parts.**

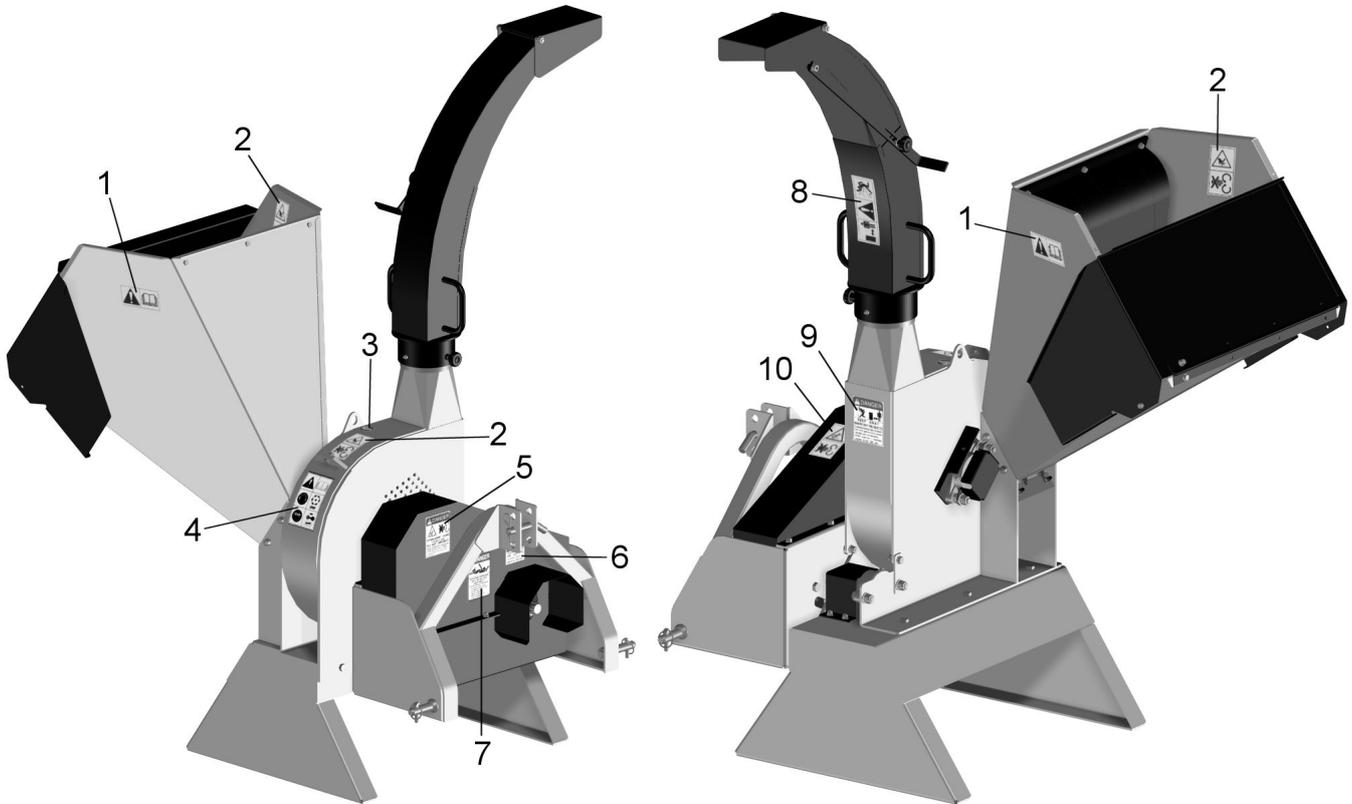
## TORQUE SPECIFICATIONS

For correct hardware tightening on the tiller, we suggest the use of suitable torque wrench and the applicable torque as listed in the table below:

<b>M-THREADED SCREW/BOLTS</b>				
<b>Bolt grade</b>				
<b>Thread</b>	<b>8.8</b>		<b>10.9</b>	
	<b>Nm</b>	<b>Lb-ft</b>	<b>Nm</b>	<b>Lb-ft</b>
M6	11	8.5	17	12
M8	28	20	40	30
M10	55	40	80	60
M12	95	70	140	105
M14	150	110	225	165
M16	240	175	305	225
M18	330	250	475	350

## SAFETY LABELS

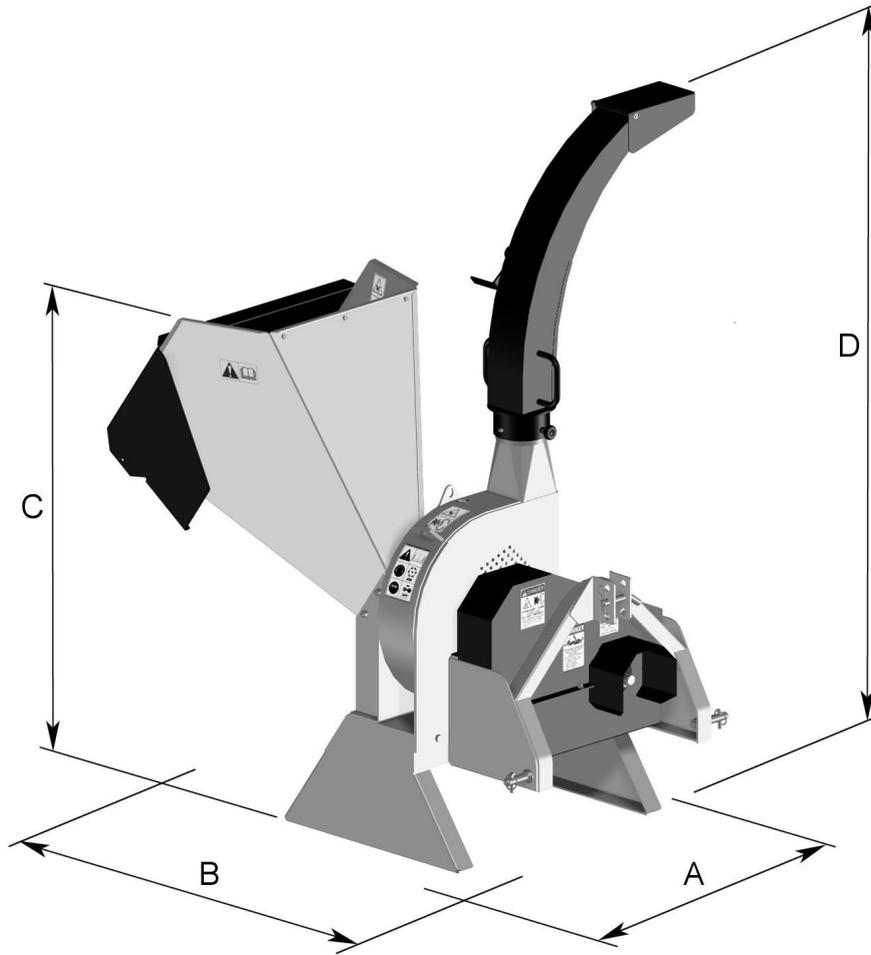
The safety labels and the information on the machine, listed in the following table, must be necessarily carried out; failure to carry out these warnings can cause death or severe injuries. Make sure that the labels are always present and legible, should this not be the case contact your nearest SICMA dealer to replace the missing or illegible ones.



1		<p>Attention: read carefully all instructions and safety rules before using the machine.</p>	2		<p>Danger of hands injuries: do not open or remove the safety protections while the machine is operating.</p>
3		<p>Hooking point for the machine's lifting.</p>	4		<p>Attention: read carefully all instructions and safety rules before using the machine. Stop engine and remove key before maintenance or repair works. Wear eyeglasses or face guard for eyes and face protection and head guard to protect hearing.</p>
5		<p>ENTANGLEMENT HAZARD To prevent serious injury or death: Do not unbolt or remove safety shields while engine is running.</p>	7		<p>ROTATING DRIVELINE Contact can cause death KEEP AWAY! Do not operate without: • All driveline guards, tractor and equipment shields in place • Driveline securely attached at both ends • Driveline guards that turn freely on driveline</p>
6		<p>Operate only with 540 rpm PTO to avoid injury or machine damage.</p>			

<p><b>8</b></p>		<p>Thrown objects: keep a safety distance from the machine.</p>	<p><b>9</b></p>		<p>KEEP AWAY THROWN OR FLYING OBJECTS To prevent serious injury or death:</p> <ul style="list-style-type: none"> <li>• Do not operate if all safety shields are not installed</li> <li>• Stop machine if anybody comes within 100 feet</li> </ul>
<p><b>10</b></p>		<p>Danger of hands injuries: keep safety guards in position while operating.</p>			

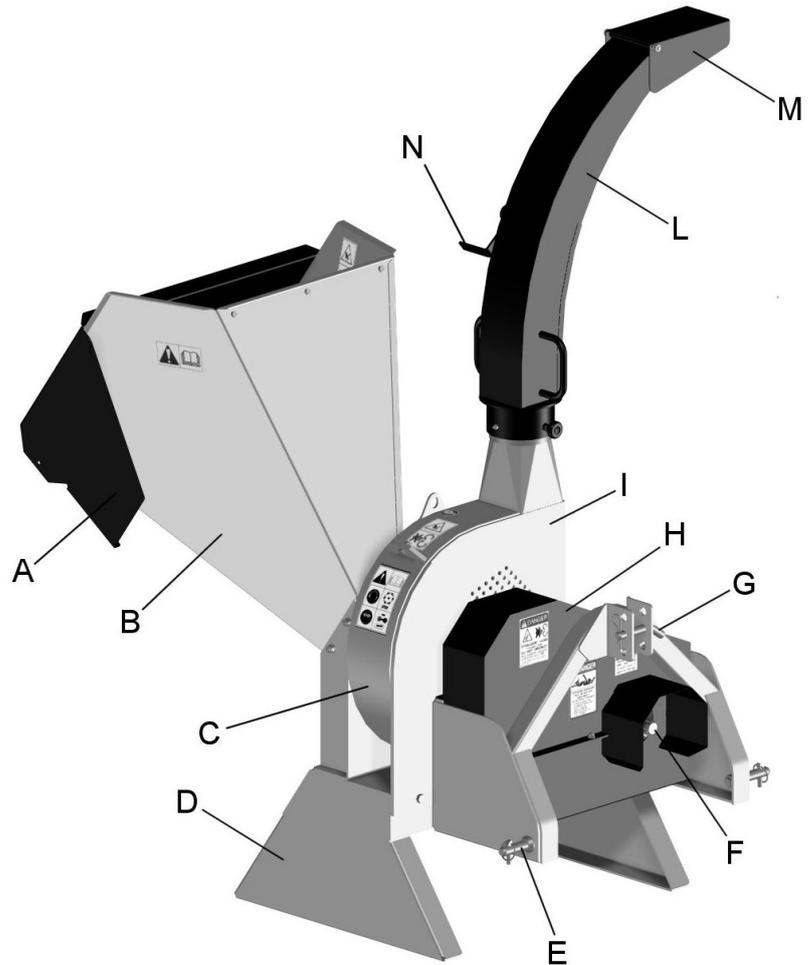
**TECHNICAL FEATURES**



<b>Technical features</b>	<b>U.S.</b>	<b>Metric</b>
A	45"	1150 mm
B	50"	1250 mm
C	57"	1440 mm
D	76"	1920 mm
Power required	20 HP	20 HP
Diameter of material	4"	100 mm
Hopper dimension	27"x27"	700x700 mm
Feeding system	Manual gravity	Manual gravity
Feeding opening (LxH)	5 3/4" x 8 1/4"	146x210 mm
Number of blades	4	4
Flywheel Speed	1600 rpm	1600 rpm
Knives tip speed	8326 fpm	42.3 m/s
Flywheel weight	110 lbs	50 kg
Flywheel diameter	20"	505 mm
Flywheel thickness	1 1/4"	32 mm
3 point hitch	Cat. I	Cat. I
Quick 3 point hitch	Cat. I	Cat. I
Power take off	540 rpm	540 rpm
Weight	660 lbs	276 kg

## MAIN PARTS TERMINOLOGY

- A) Hopper extension/cover
- B) Hopper
- C) Chipper Housing
- D) Chipper base
- E) Lower 3rd point hitches
- F) PTO at 540 rpm
- G) Upper 3rd point hitch
- H) Transmission cover
- I) Knives housing
- L) Blower discharge tube
- M) Exit deflector
- N) Deflector adjustment



## IDENTIFICATION PLATES

Identification plates are placed on every chipper and are structured as follows:



**When asking for information or technical service, always specify the machine type.**

## ALLOWED USE

**SICMA** chippers taken into account in this instruction manual, are equipments designed to chip wood's residuals from pruning and residuals from packaging or from other structures made of wood and free of nails.

Any other use jeopardizes the operator's safety and the machine integrity.

## IMPROPER USE

When using **SICMA** chippers it is particularly forbidden:

- The attachment to tractors of unsuitable power or weight.
- To assemble the machine without securing the adjustment links of the three-point hitch of the tractor.
- To chip materials different from wood.
- To introduce pieces of wood of bigger dimensions compared to the machine's capacity .
- To use the machine without having placed the relevant pins and cotter pins where required.
- To lift the machine when the power takeoff is engaged.
- To approach rotating parts when wearing inappropriate work clothing.
- To get on the machine while it is being used or transported.

# SAFETY

## SAFETY IN THE WORKPLACE

Most of the accidents which take place while the operator is using the machine or the equipment or during their maintenance or repair are caused by a lack of compliance with basic safety precautions. It is necessary, therefore, to become more and more conscious of the potential risks of one's action by constantly paying attention to one's own actions and their effects.

**If potentially dangerous situations are known, accidents can be prevented!**

## OPERATOR'S REQUIREMENTS

All operators using the equipment must be competent and necessarily meet the following features:

**Physical:** good eyesight, coordination and capability of carrying out all functions required for the machine's use

**Mental:** capability of understanding and applying the established rules and safety precautions. Users must pay attention and be sensible for their own and other people's safety.

**Training:** users must have read and studied this manual, any enclosed graphs and schemes and its identification and danger plates. They must be skilled and trained for any use or maintenance activities.

## WORK CLOTHING

When working and especially when executing repair or maintenance activities, it is necessary to wear the following clothing and safety accessories:

Overalls or other comfortable clothing, not too loose to prevent the possibility that parts of them may be caught in the moving parts.	
Protective gloves for hands	
Protective glasses or faceplate to protect eyes and face.	
Protective helmet for the head.	
Ear protections to safeguard hearing	



**Wear only personal safety accessories in good condition and complying with the rules in force.**

## GENERAL SAFETY RULES

**Always consider the features of the area where work is taking place:**

- Having to attach the equipment on the spot it is necessary to arrange a flat and compact area of sufficient dimensions.
- When the equipment is running, it is forbidden to stand within the field of action of the chipper or of the other accessories of which it is provided with.

### Prepare the work:

- Before and when working do not drink alcohol, take drugs or any other substances which may alter your capability of working with machine tools.
- Be sure to have sufficient fuel, to prevent a forced stopping of the machine, maybe during a critical movement.
- Do not use the equipment under unsafe conditions. For instance, it is forbidden to execute makeshift repair activities just to start working; it is forbidden to work at night with an insufficiently illuminated working area.

### When working or during the maintenance activities it is necessary to remember:

- The labels and stickers providing instructions and pointing out the dangers, must not be removed, hidden or made illegible.
- Do not remove, except in case of maintenance, the safety devices, protective covers or sumps. When it is necessary to remove them, stop engine, handle with care and reassemble them properly before restarting the engine and using the equipment.
- It is forbidden to lubricate, clean and adjust the moving parts while they are running.
- During maintenance or adjustment activities on the equipment it is forbidden to use hands for executing operations for which there are specific tools.
- Do not use tools in bad condition or inappropriately, for instance pliers rather than wrenches, etc.

- Before executing interventions on hydraulic lines under pressure, disconnect their components and make sure that the line is no longer under pressure and that it does not contain any hot fluid.
- Check out all pipe fittings and make sure that they are well connected before raising steam to the hydraulic lines.
- When maintenance or repairs are completed check out that no tools, wiping rags or other materials are left inside spaces or guides with moving parts.
- While using the equipment it is forbidden to make more than one person give directions and make signals. The eventual directions and signals relating to the load handling must be given by one person only.
- Do not unexpectedly call an operator while he is working if not necessary; it is forbidden as well to frighten who is working and throw objects, even if just for fun.
- Watch out those present, especially the children!
- Always make sure that no people stand within the equipment's ray of action.
- Do not make people get on the machine.
- When the equipment is not needed, stop the vehicle's engine, park it on a flat ground with first speed and parking brake on, with the machine rested on the ground and power takeoff disengaged.
- Do not make any cleanings, lubrications, repairs or adjustments with running engine and lifted machine.
- Do not stretch your hands into the chipper while it is working.
- Short wooden parts must be pushed towards knives using longer wooden parts or by means of proper pusher tugs.
- Small wooden fragments must be pushed in slowly and longitudinally in order to avoid that splinters of wood or other material are thrown against the user.
- Do not use the machine indoors in order to prevent smoke poisoning from the engine combustion.
- Foreign bodies, as pieces of metal or stones, must be removed before starting the machine.
- Remove protection cover only when the machine is completely stopped from inertia motion and after having disconnected the drive shaft and removed the starting key from the engine.
- Use the chipper only when wearing proper clothing and after having worn suitable protection for hands, eyes, ears and head.
- During transporting chipper blower discharge tube must be oriented so that it does not stretch out from the outline of the machine.
- For road circulation strictly comply with regulations of the Country where you operate.

**SICMA declines all responsibility for a lack of compliance with these instructions.**

# STARTING UP

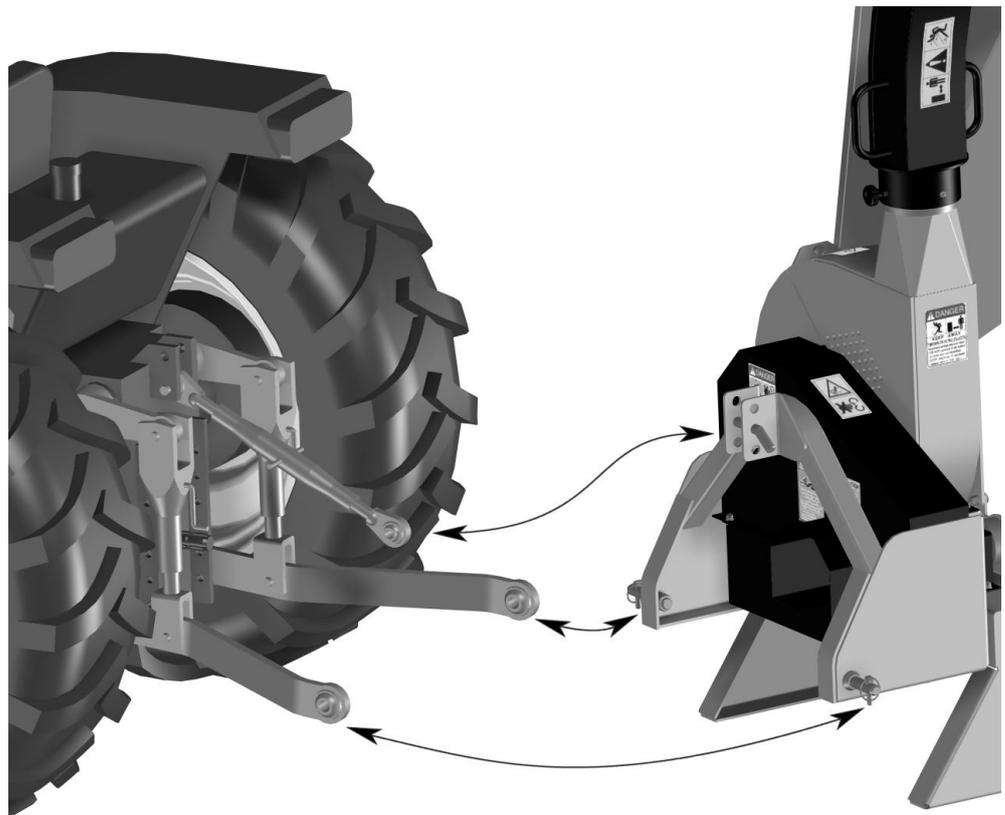
## ATTACHMENT TO THE TRACTOR

It is advisable to read carefully this Operator's Manual as well as the instruction manuals of the tractor and the PTO shaft manufacturers.

All SICMA chippers have been manufactured to be attached to any tractor provided with hydraulic lift and universal three-point hitch.

Before attaching the equipment to the tractor, set both on a flat and smooth ground and make sure that nobody is standing between them.

- Approach slowly the chipper with the arms of the lift and connect first the lower arms and then attach the upper third point hitch. The chipper is equipped with attachment pins of 1<sup>st</sup> category ( $\varnothing 22$ ).
- Make sure you fix the pins with the corresponding safety pins.
- Lock the arms of the lift with proper chains or anti-shaking tensioners.



### Caution

After having accomplished the above-mentioned activities it is always advisable to check that all bolts and nuts of your chipper are tightened strongly (ref. bolts and nuts tightening table).

### Caution

Pay attention to the tractor's front wheels grip when the equipment is set up and lifted from the ground; if the wheels appear to be too lightened, ballast the tractor front part.

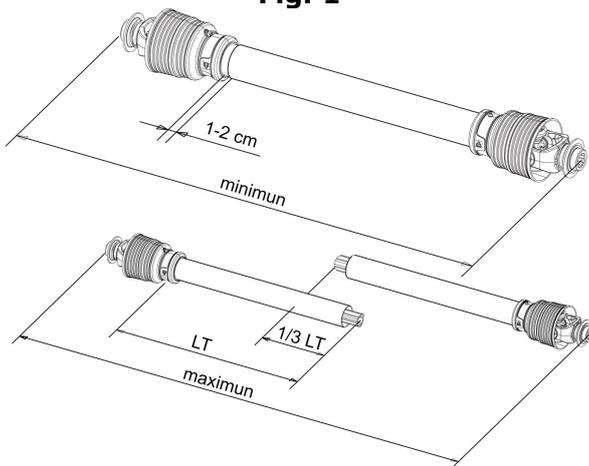
## DRIVELINE ATTACHMENT

Before assembling the cardan shaft, it is very important to check out that its number of revolutions and direction of rotation match those of the tractor. Also, read carefully the instruction manuals of the cardan shaft and the tractor's manufacturers. Before starting work, check the presence of the safety guards on the power takeoffs of the machine, of the cardan shaft and of the tractor. Check in particular that the safety guards cover the cardan shaft throughout its extension.

### Caution

**When at their maximum extension, the safety guards' plastic hoses shall overlap of at least 1/3 of their length (LT). When in their maximum closing position, the minimum clearance allowed shall be of 1-2 cm (picture 1).**

**Fig. 1**



Check out that the PTO shaft minimum and maximum length are the ones required by the machine-tractor coupling.

Should problems arise, contact a skilled repair shop or the cardan retailer. After installation, secure safety guards both to the tractor and the machine using the special chains and make sure that they pivot freely. If the PTO shaft is equipped with other safety devices, such as a pair limiter or freewheels, be sure to install them on the working machine side. As for the PTO use and maintenance refer to the relevant booklet.

### Danger

**These operations shall be made only on working ground and only after having stopped the engine, disengaged the power takeoff and pulled the parking brake. If necessary, lift the machine from the ground but, in order to avoid risks for people, place it on supports thus preventing any injuries that might be caused by its sudden fall.**

## CHECKS PRIOR TO STARTING UP

Before starting the chipper check the following:

- The machine is properly connected.
- It is firmly rested on the ground.
- The chipper is parallel to the ground in order to avoid major stress on the PTO.
- The knives are sharpened.
- The blower discharge tube is correctly mounted and oriented.

## STARTING UP OF THE CHIPPER

When all setting up operations are completed, your machine is ready to be used.

At this point it is possible to engage power take off and work the machine at full capacity.

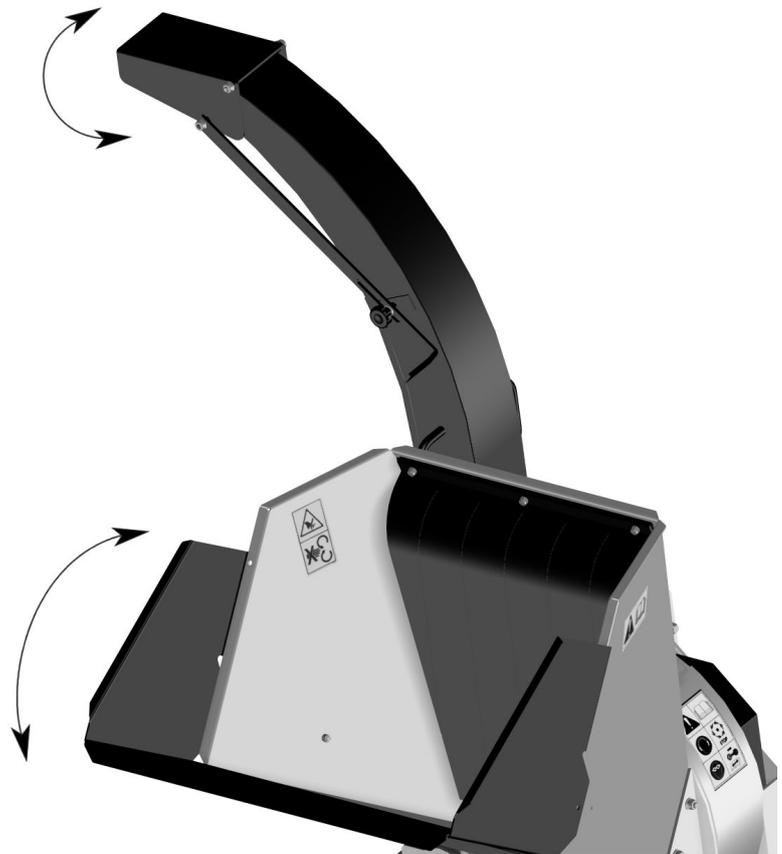
### Caution

**Use the power take off only at 540 rpm.**

## MATERIAL FEEDING SYSTEM AND TRITURATION

Before starting trituration make sure the unit has reached regular speed.

- After having correctly oriented the blower discharge tube, open the hopper cover.
- Accurately select the wooden material to be triturationed and do not exceed the maximum cutting diameter of 100mm.
- Small branches can be kept together and put in simultaneously with their roots turned towards the entrance.
- Absolutely avoid pushing the branches down the hopper slide using the hands. Use other pieces of wood and if necessary, use proper pusher device.



### **Caution**

**Before putting the parts to be chipped into the hopper, remove parts different from wood so that knives are not damaged.**

## ROAD TRANSPORT

While transporting the machine it is very important to follow the road traffic code of the country where you circulate.

## SET ASIDE / STORAGE

If the chipper will not be used for a long period of time, we advice to:

- 1 Wash the machine accurately and dry it.
- 2 Check out all equipment and replace damaged or worn parts.
- 3 Tighten strongly all bolts and nuts (ref. bolts and nuts tightening table).

Make an accurate greasing and at last protect the whole machine with a tarpaulin. Store it in a dry place.

Following the instructions will allow you to find the chipper always in good conditions whenever you use it.

# MAINTENANCE

Maintenance is a fundamental operation to extend life and performances of any agricultural implement; taking care of the machine grants you not only a good work condition, but also a longer life of the whole equipment and a greater safety in the workplace.

The operating times indicated on this manual have just an informative character and are referred to normal conditions of use; they can thus undergo variations according to the type of service, to the more or less dusty environment, to seasonal factors, etc.

## MAINTENANCE SCHEDULE

### EVERY 10 HOURS OF WORK

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- At the end of every working day it is advisable that you clean accurately the machine so that its parts are always in good working condition.
- Grease crosses on the PTO shaft.
- Make a general inspection to verify possible hydraulic oil leaks or the presence of damaged parts.
- Make sure the knives are in good conditions, sharpened and perfectly fixed by the tightening bolts.

### EVERY 25 HOURS OF WORK

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- Grease the driveshaft crosses through the special lubricating nipples.
- Grease the transmission shaft through the proper lubricating nipples.

### EVERY 50 HOURS OF WORK

---

- Check that belts are strongly tightened.
- Check that all bolts and nuts are correctly tightened.

## MAINTENANCE INTERVENTIONS

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**Before executing maintenance activities on the machine, stop engine, disengage power takeoff, pull parking brake and place the equipment on the ground in horizontal position.**

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## LUBRICATING

### Caution

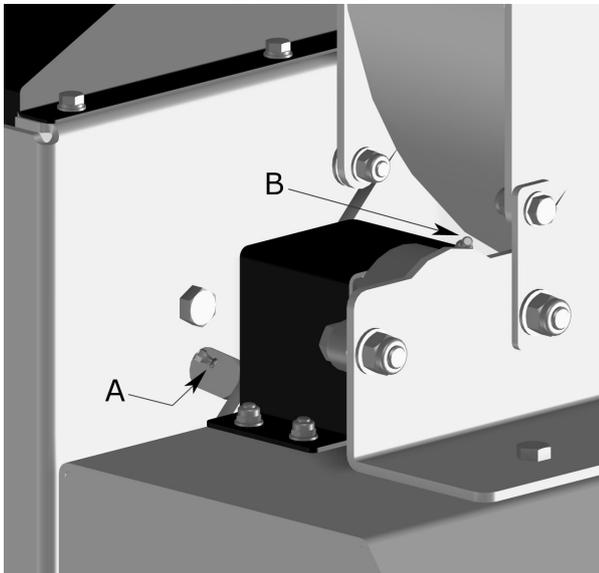
Before injecting lubricating grease into the nipples, clean them accurately to prevent mud, dust or other foreign matters from mixing up with grease, thus diminishing the lubrication effect

Lubricate the machine regularly to keep it efficient and extend its life and performances.

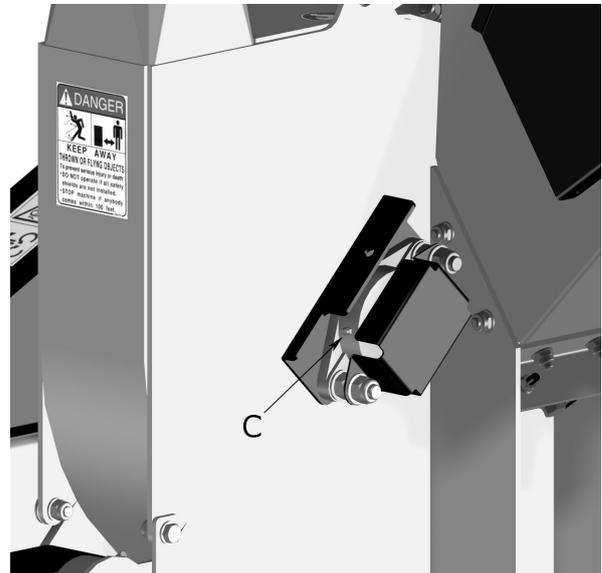
Inject lubricating oil through the proper lubricating nipples using a pump in the following points:

- A, B (Picture1) Transmission shaft supports.
- C, D (Picture 2-3) Flywheel shaft supports.
- E (Picture 4) Blower discharge tube base

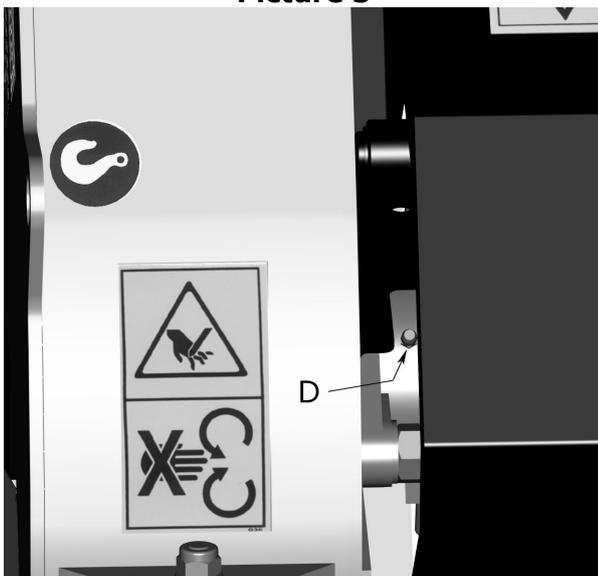
Picture 1



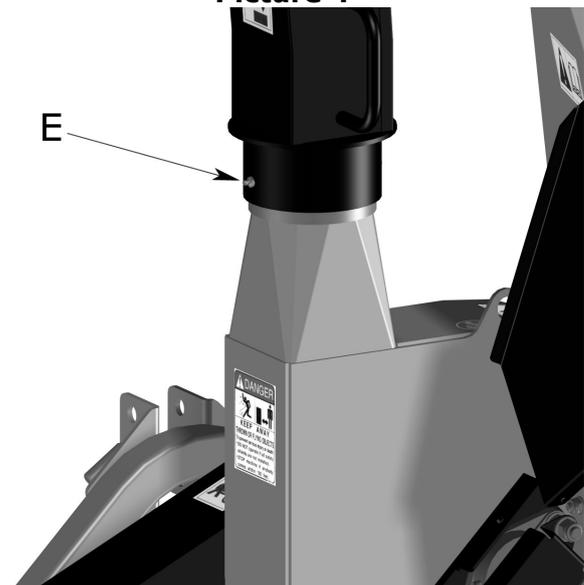
Picture 2



Picture 3



Picture 4

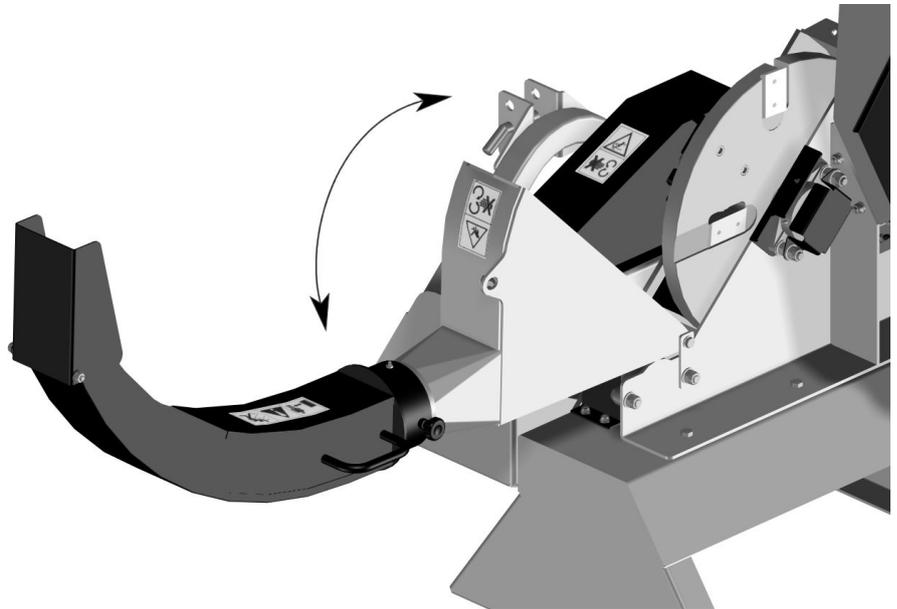


## BLADES CHECK

To assure a perfect functioning of the machine check often that its blades are in good conditions, sharpened and perfectly fixed by the locking bolts.

To inspect the rotor and the blades condition please proceed as described below:

- Stop the machine.
- Disassemble the PTO shaft and remove the tractor ignition key.
- Remove the locking screw of the flywheel housing.
- Grab the spreader from the handles and slowly open the cover to maximum open position.
- Rotate the flywheel checking the condition of every single blade.



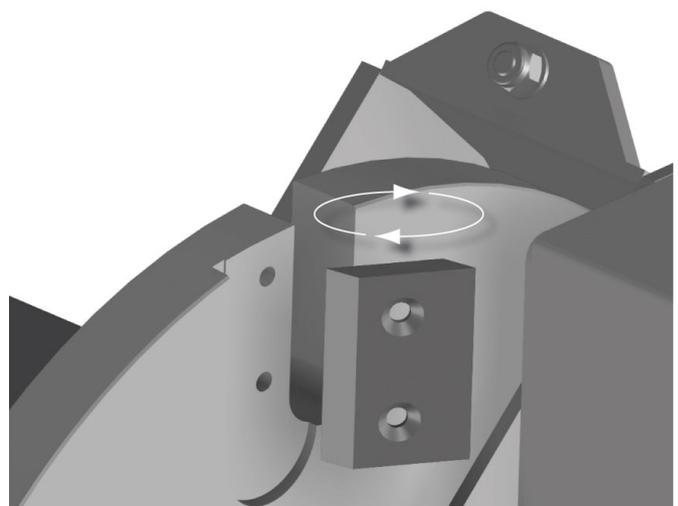
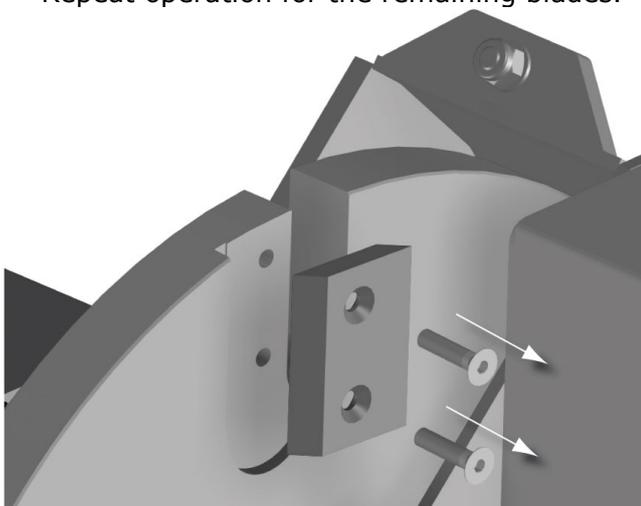
## SHARPENING AND REPLACEMENT OF BLADES

A poor performance of the chipper usually depends on its blades wear.

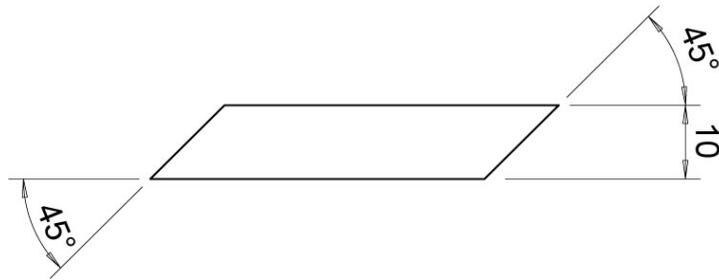
Blades are reversible and have two cutting edges to be used before executing sharpening or replacement.

To disassemble the blades, please proceed as follows:

- Repeat previous point regarding check.
- Rotate flywheel until blade screws are accessible.
- If necessary, warm up the screws to remove the threadlocker.
- Remove fixing screws and pull out the blade.
- Rotate blade of 180° and replace the cutting intact edge in the slot.
- Reinsert the screws, add the threadlocker and tighten the screws with a torque wrench at 40Nm.
- Repeat operation for the remaining blades.



If both edges of blades are worn it is possible to proceed with their sharpening.  
In case blades are particularly worn or damaged, replace them referring to the suitable spare parts catalog.



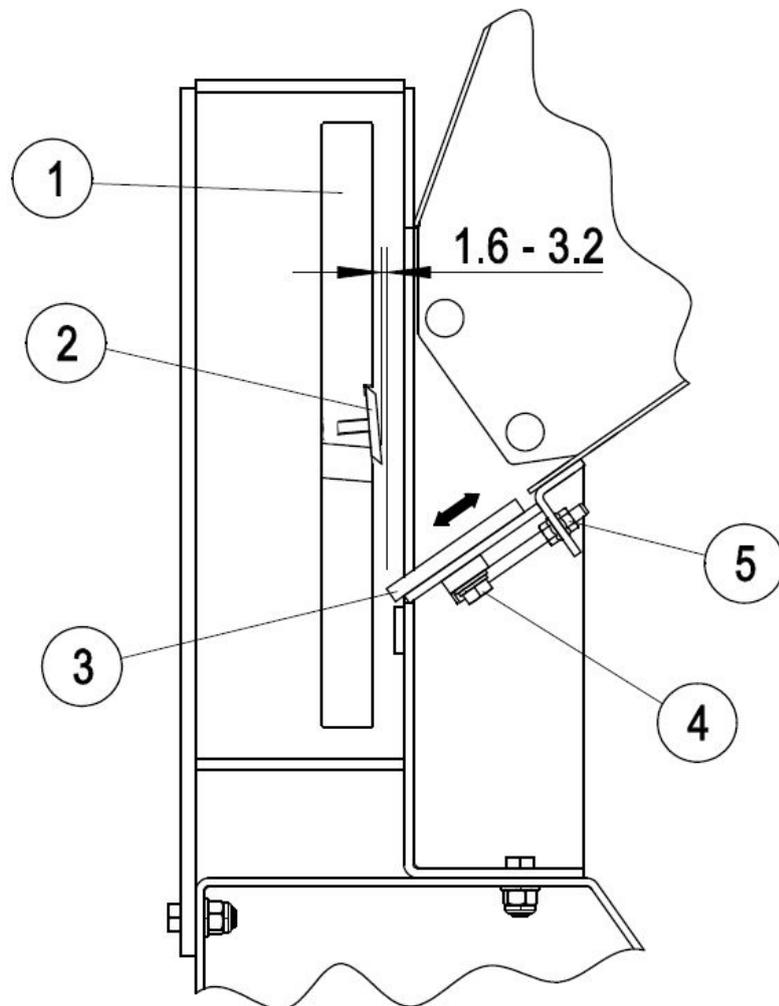
**Fig. 5**

 **Caution**

**Blades sharpening must be done with suitable machines that can guarantee a correct sharpening which respect the angles indicated (fig. 5).**

Every time blades are removed (disassembling/reassembling), before starting the machine again, it is advisable to check and adjust the distance between blade and bed knife.  
To adjust bed knife position proceed as follows:

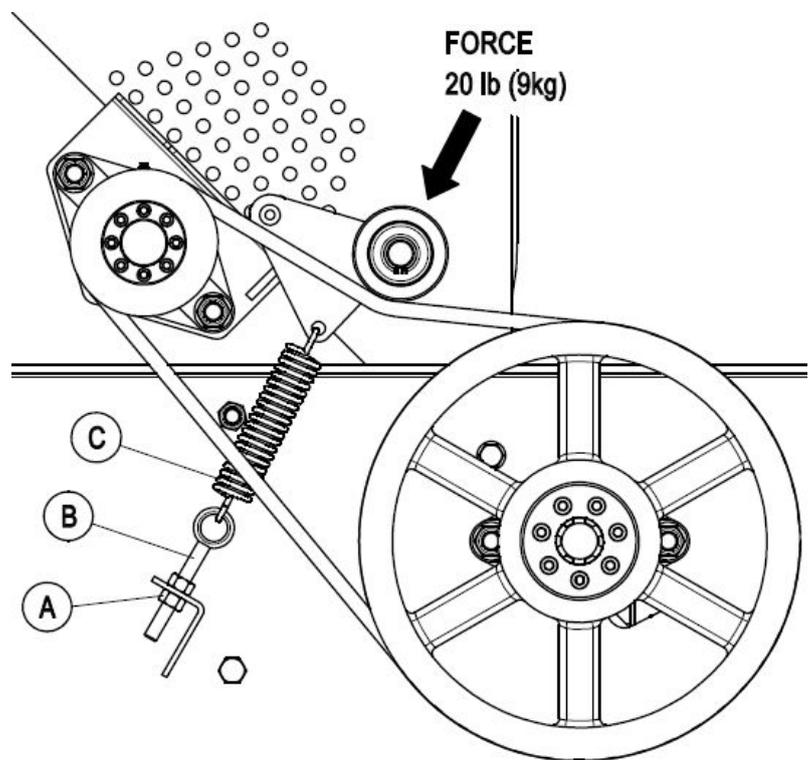
- Loosen locking screws (4).
- Rotate the rotor (1) bringing the blades (2) near the bed knife (3).
- Adjust the position of the bed knife (3) by means of adjusting nuts (5) making sure that distance between blade and bed knife is included between 1.6 (0.063") and 3.2 mm (0.126").
- Make sure that this distance is the same for all blades.
- Block adjusting nuts (5) and tighten locking screws (4) with a torque wrench as shown on table of page 5.



## BELT TENSION CHECK

Belts have an automatic spring tensioner and need a check on the condition of springs.  
To increase or decrease tension of belts proceed as follows:

- Stop the machine.
- Disassemble the PTO shaft or remove ignition key.
- Take off screws of the two transmission covers, upper and lower.
- Remove the two covers.
- Act on the nuts (A) of rod (B) which is threaded to stretch or extend the spring (C) with a power of 9 kg (20 lb).
- If the spring is slackened it is necessary to replace it; first it is necessary to disassemble the threaded rod.
- Block the rod washers.
- Reassemble the two transmission covers and tighten the relevant screws.



## SPARE PARTS ORDERING

To order spare parts, please consult relevant catalogue.

Request of spare parts must be made to the retailer or to the nearest service centre and must always be complete with the following information:

- Type and width of the equipment.
- Part number of the needed spare part. If not in possession of this number, you can replace it with the number of the table where the part is represented and the correspondent reference.
- Denomination of the needed part and desired quantity.
- Preferred transportation mode. When this preference is not specified, the retailer or service centre, even if paying great care to this type of service, do not answer for possible shipping delays due to force majeure. Transport charges must always be paid by the addressee.

## DECLARATION OF CONFORMITY

### DECLARATION OF CONFORMITY

The company

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e-mail: info@sicma.it - http://www.sicma.it

hereby declares that:

Product: BIOTRITURADORAS  
Model: EC-100  
Serial number:

complies with the essential requirements for safety and health of Directive 2006/42/CE.

To fulfil the above mentioned Directive have been applied the following harmonised standards:

and the technical standards and specifications:

- ISO 11684:1995
- UNI EN ISO 13857:2008
- UNI EN ISO 13732-1:2009
- UNI EN ISO 14120:2015
- UNI EN ISO 15811:2015
- UNI EN ISO 4413:2012
- EN ISO 12100

The person authorised to compile the technical file is Mr. Lorenzo Aurora

Miglianico, 01-01-2016

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