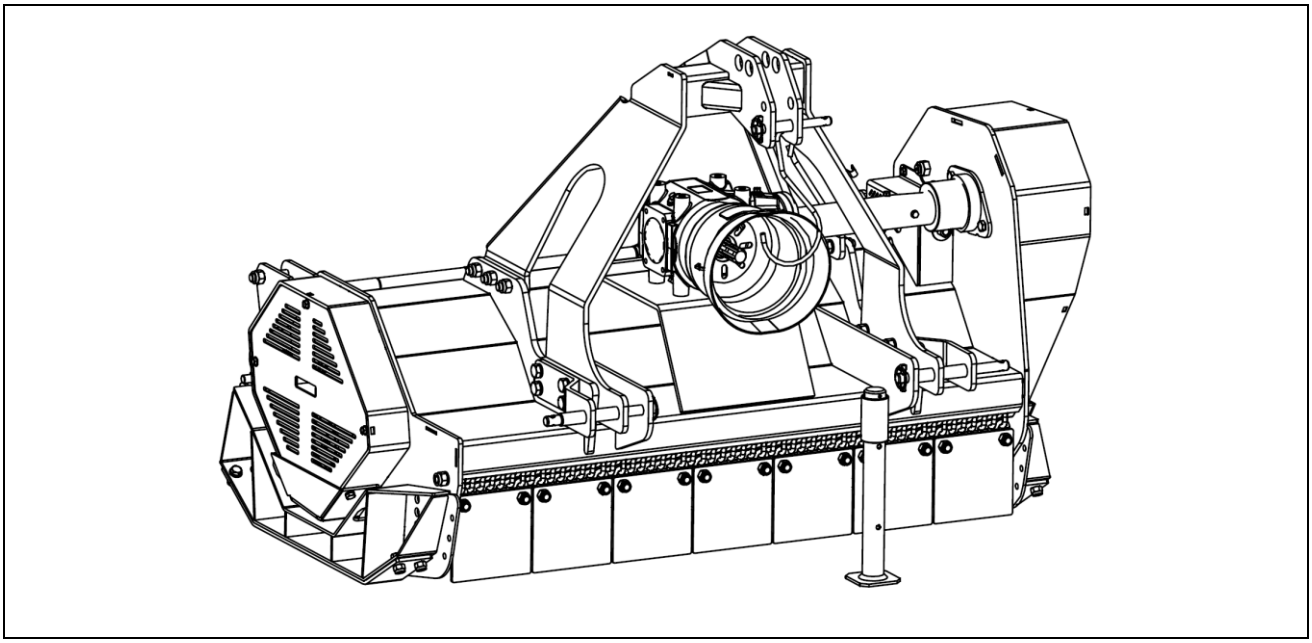
INSTRUCTION MANUAL

FORESTRY MULCHER

Brand: BERTI Macchine Agricole
Model: ECF/MD – EFX/MD



Carefully read this manual before operating the machine

ORIGINAL VERSION

TABLE OF CONTENT

INTRODUCTION

This instruction manual describes the operating mode and contains all instructions necessary to properly use and maintain (perform ordinary and periodical maintenance operations) the mulcher that will be referred to from now on as machine. To facilitate consultation, this instruction manual is divided into clearly identifiable chapters.
The indications contained in this manual are intended for professional users, with specific knowledge regarding the methods of use of the machine, that are authorised, trained and properly educated. The use of original spare parts and accessories is recommended. As well as invalidating the warranty, use of non-original spare parts could be dangerous, reducing the lifespan and duration of the machine and causing serious injury/damage to persons, animal and objects.
The manual must always accompany the machine, even if the latter is sold. If the manual is damaged or lost, a copy should be requested to the Manufacturer of the machine or to the owner. This manual is an integral part of the machine.

<table>
<tr><td rowspan="2"> 
ATTENZIONE</td><td>For the USER: Before using the machine you must carefully read this instruction manual in which are indicated the actions to be performed for proper use of the machine, paying particular attention to all the safety-related regulations. Abuse of performance and lack of compliance with the use and safety standards render the user responsible for any damages that may occur to persons, things or animals as a result of the use of the equipment.
The manufacturer of the machine doest not directly control the field in which it is used, the method used or the method of maintenance and therefore the user is responsible to respect the rules of common sense in the operating areas, especially in the critical ones, paying utmost attention to its own safety, to the safety of other persons, animals and property, always assessing the danger before performing any operation.
If the user delegates the use of the machine to a third party, it is their responsibility to make sure that the other user has properly read and understood this instruction manual.
This instruction manual must always be kept in an accessible place, so that it can be immediately consulted in case of need.</td></tr>
<tr><td>For the SUPPLIER, DEALER and IMPORTER: the person in charge of delivering the machine to the end user must apply it to the tractor. Therefore it is their responsibility to read this instruction manual and understand its contents before finally delivering the machine. It is also his responsibility to train the final user and make sure that the latter has read and understood the indications in the instruction manual.</td></tr>
</table>

GLOSSARY

Machine	Forestry mulcher.
Operating machine	Tractor.
User	The user is considered as the operator, user, owner and/or staff assigned to running the machine, cleaning it, performing maintenance and repairs and that can recognise hazards deriving from use of the machine, and therefore prevent them.
Specialised personnel	Persons purposely trained and enabled to carry out maintenance or repair interventions requiring a particular knowledge of the machine, of its functioning, of the relative safety devices and their intervention modalities.
Safety Personnel	Personnel in charge of making sure that no persons are inside the machine operating area.
Manufacturer	Company that manufactures the forestry mulcher→ Berti Macchine Agricole S.p.A.
THREE-POINT CONNECTION	Connection device that allows connecting the mulcher to the tractor by setting the width of the parallel of the tractor. The adjustment rods of the parallels have notches along the thread of the logs, in which are engraved the categories. The three-point connection can be Cat., 1, Cat. 2, Cat. 3 or Cat. 4 (if a Cat. 3 mulcher is to be attached, it is sufficient to adjust the register on the tractor parallels to Cat. 3 in order to align the tractor perfectly with the mulcher's dimensions).
Machine operating range	The operating area, **fixed at 50m,** delimits the machine operating area and should be considered **"dangerous zone"**. Persons, things and animals must remain outside the machine operating area.

	**DANGER** - This signal indicates and imminent and real dangerous situation, that may cause serious injuries or death if not avoided.
	**WARNING** - This signal indicates a potentially dangerous situation, that may cause serious injuries or death if not avoided. Dangers marked by this signal present lesser degree of risk of serious injury or death than those indicated by the signal DANGER.
	**CAUTION** - This signal indicates a potentially dangerous situation, that may cause minor injuries or moderate wounds. The symbol is used to inform that certain actions may cause personal injuries or damage.
	**PLEASE NOTE**

1. ABOUT THE INSTRUCTION MANUAL

This manual is an integral part of the machine and must accompany the same in case of resale and until its demolition. If this manual should be lost or damaged, a copy of it must be requested from the manufacturer ("BERTI macchine agricole S.p.A.", via Musi 1/A - 3, Caldiero - Verona., Tel.+39.045.6139711) or from the Retailer.

	The presence of this symbol, in its three versions, indicates that maximum attention must be paid to the subject discussed.

Some of the devices described in this manual may not be present on your machine, depending on the chosen set up and on the market of destination.

1.1. Manual Update

The information, descriptions and illustrations contained in this manual reflect the state of the art of the machine at the moment it was put on the market.
The Manufacturer reserves the right, at any time, to apply modifications to the machinery for technical or commercial reasons. Such modifications do not oblige the Manufacturer to intervene on machines sold up until that moment, nor to consider this publication inadequate.
Any integration that the Manufacturer will consider opportune to supply later on must be preserved together with the manual and be considered an integral part of the same.

1.2. COPYRIGHTS

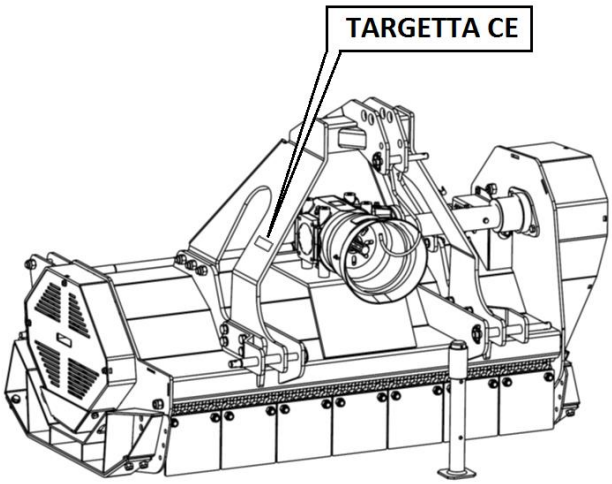
The copyrights of this manual belong to the Manufacturer. This manual contains texts, drawings and technical designs that may not be shared with third parties, either completely or partially, without written authorisation from the Manufacturer.

1.3. MACHINE IDENTIFICATION PLATE AND CE MARKING

Every machine is equipped with an identification plate, containing the following data:
- CE Marking;
- Country of fabrication;
- Manufacturer's name and address;
- Model;
- Serial Number;
- Year of manufacture;
- Mass;
- Model version.

The machine is supplied as standard with:

- The machine use and maintenance manual;
- The manufacturer "EC" declaration of conformity.



Serial number components:

- **The first 5 fields indicate a progressive number;**
- **The next two fields indicate the year of manufacture of the machine;**
- **The last 3 fields are description fields.**

1.4. CE CERTIFICATE OF CONFORMITY OF THE MACHINE

During the design stage, the following harmonised norms were taken into consideration:

- UNI EN ISO 4254-1:2015
- UNI EN ISO 4254-12:2012
- UNI EN 15811:2015

Technical specifications:
- ISO 11684:1995

1.5. MACHINE INFORMATION

1.5.1. SPECIFIED USE

The ECF/MD and EFX/MD models applied to operating machines may only be used in the agricultural sector for the mulching of uncultivated vegetation, branches and trunks up to a diameter of approx. 15 cm.
The machine is carried by the operating machine via a three-point connection and works on the land thanks to its own weight and rotor rotation, actioned by picking up power from the operating machine through a cardan shaft. The machine is not suitable to be used in other sectors than in agriculture.

NEVER USE THE MACHINE FOR DIFFERENT PURPOSES FROM THOSE PROVIDED

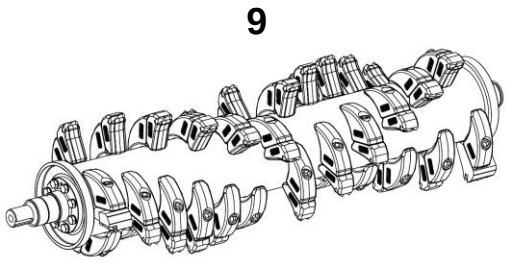
Use is prohibited if coupled to a working vehicle with features that differ from those listed in paragraph 1.5.3, if not in compliance with that stated in chapters 1-2-3-4-5 of this instruction manual, on land with stones, scrap iron, iron wire and any other material that is not of vegetable origin on the surface, on land that causes precarious balance for the working vehicle, (e.g. steep uphill or downhill travel, steep slopes, in the vicinity of a precipice, on very uneven landetc.) and in all those situations, without any exception, that can cause general dangerous conditions and serious consequences for the user, objects, persons and animals.

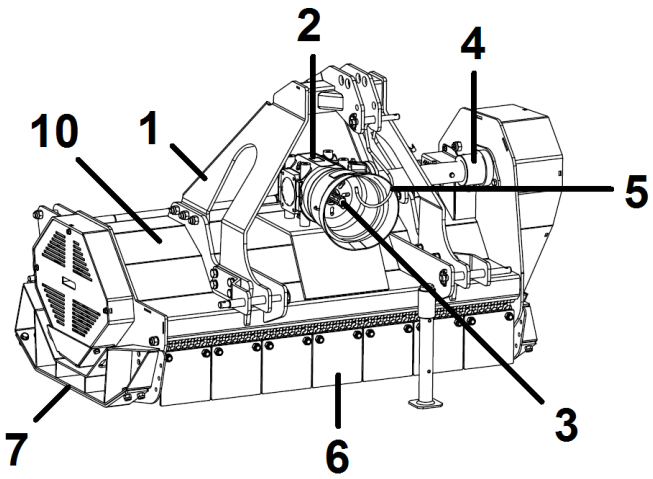
PERICOLO	**Any other use of the machine (different from the one indicated in the instruction manual) should be considered unauthorised and therefore dangerous.**

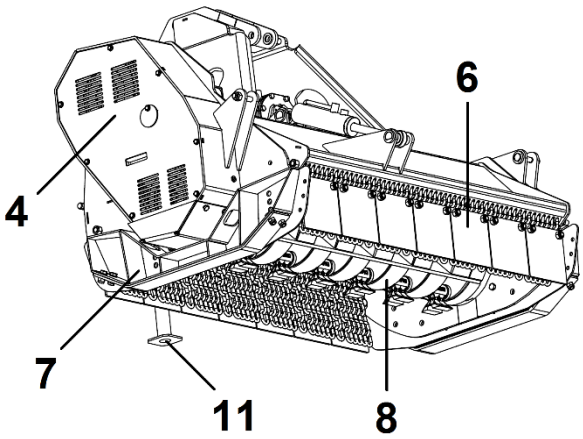
1.5.2. DESCRIPTION

The machine has an operating component consisting of a rotor with horizontal axis, on which the mulcher tools are mounted , that rotates at high speed.

NOMENCLATURE OF THE LABELLED COMPONENTS:
1 Three-point connection
2 Multiplier group
3 Cardan shaft connection
4 Distribution group (extension, pulleys, belts, tensioners)
5 Cardan shaft support
6 Chain + Straps protection
7 Side slides
8 Retractable rotor (ECF/MD Model)
9 Fixed tooth rotor (EFX/MD Model)
10 Chassis
11 Support feet

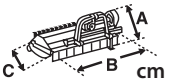


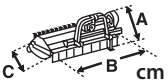




1.5.3. TECHNICAL DATA

The machine is suitable to be used with operation machines with a power rating between 58 - 95 kW (80 - 130 CV).
It can operate in tow or in front of the tractor.
The table below indicates the machine's field of operation.

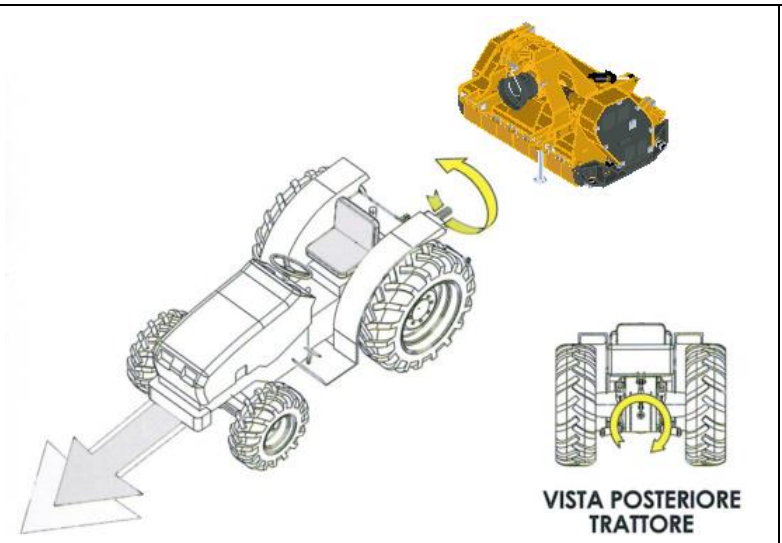
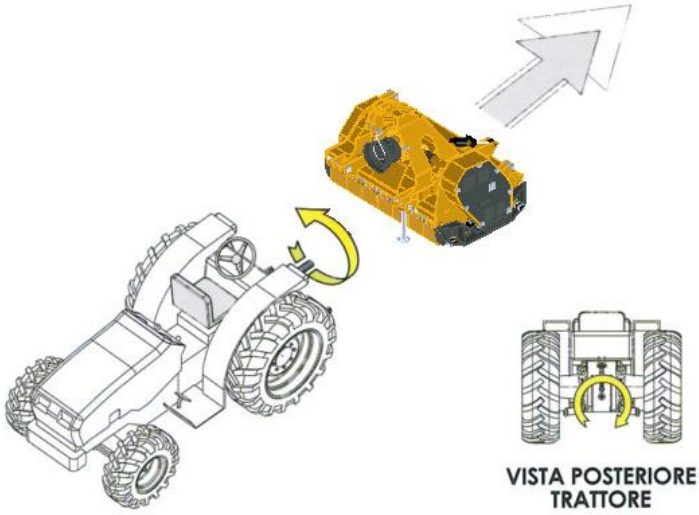
Mod.									
	cm	Min	Max	mm	n°	n°	PTO	A	B	C	min	max
ECF/MD 140	140	80	130	680 | 720	24	4	1000 (540)	120	175	130	1070	1270
ECF/MD 160	160	90	130	680 | 920	28	4	1000 (540)	120	195	130	1150	1355
ECF/MD 180	180	90	130	880 | 920	32	4	1000 (540)	120	215	130	1240	1445
ECF/MD 200	200	90	130	880 | 1120	36	4	1000 (540)	120	235	130	1320	1535
ECF/MD 220	220	90	130	1080 | 1120	40	4	1000 (540)	120	255	130	1405	1625

Mod.									
	cm	Min	Max	mm	n°	n°	PTO	A	B	C	min	max
EFX/MD 140	140	80	130	680 | 720	36	4	1000 (540)	120	175	130	1090	1290
EFX/MD 160	160	90	130	680 | 920	42	4	1000 (540)	120	195	130	1165	1370
EFX/MD 180	180	90	130	880 | 920	42	4	1000 (540)	120	215	130	1230	1435
EFX/MD 200	200	90	130	880 | 1120	44	4	1000 (540)	120	235	130	1290	1505
EFX/MD 220	220	90	130	1080 | 1120	48	4	1000 (540)	120	255	130	1370	1590

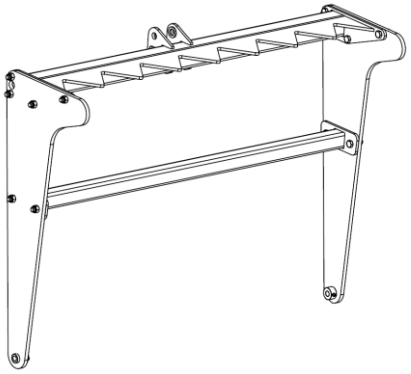

PERICOLO

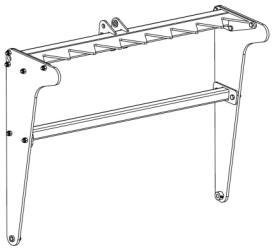
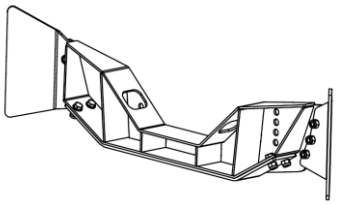
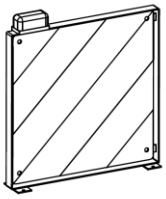
It is strictly forbidden to work with the rear hood open or in any position other than those indicated and shown in the instruction manual in chapter 3 paragraph 3.6. The risk of projection is high. Only keep the bonnet open for inspection or for maintenance operations, with the operating machine engine off, the parking brake engaged, the PTO disabled and the ignition key removed from the dashboard and kept by the operator.

SETTINGS:

	SETTING 1 Mulcher: rear Tractor PTO rotation: clockwise (standard) Direction: forwards
	SETTING 2 Mulcher: rear (rotated) Tractor PTO rotation: clockwise (standard) Direction: rearwards or reverse

1.5.4. ACCESSORIES

Description	Drawing	KG
Protection arc with mechanical adjustment		Measurement 140: 125 kg Measurement 160: 130 kg Measurement 180: 135 kg Measurement 200: 143 kg Measurement 220: 150 kg

Protection arc with hydraulic adjustment:		Measurement 140: 120 kg Measurement 160: 125 kg Measurement 180: 130 kg Measurement 200: 138 kg Measurement 220: 145 kg
Guide flaps		4 kg each
Road sign kit		5 kg

1.6. PROJECTION OF MATERIALS

PERICOLO	During some of the operations performed with the machine, you may check the materials projection; in particular, you should pay utmost attention to: - Check that all guards are present, in the correct position and efficient; - Perform regular cleaning and maintenance on the machine; - Check there are no persons, animals or objects within the working range of the machine, which could be seriously damaged.
	Use of the machine is strictly forbidden if the tractor to which it is connected is not provided with a cabin made of anti-break / armoured / shatter-proof glass and fixed guards (e.g. metallic grid). The final user must provide the tractor with guards suitable to resist the impact with the materials/objects thrown at high speed from the machine depending on the current state of the art technologies and must contact the manufacturer to request all necessary information.

1.7. NOISE LEVEL AND VIBRATIONS

PERICOLO dB	Even when operating without load, the machine exceeds 80dB(A) and the operators must use hearing protective equipment against the noise generated during operation: use earphones or earplugs. It is mandatory for the user to measure sound emission from the working vehicle - machine unit following installation and always before commissioning the machine, in compliance with that envisioned by the Laws in force. The tractor-machine assembly may produce an increased level of noise over time, due to wear; it is recommended to periodically evaluate the risk of exposure to noise. The use of P.P.E. is mandatory and must ensure the dejection of the noise level registered in compliance with the standards in force. The vibrations at the machine - working vehicle system lie within the context of the vibrations produced by the working vehicle only. Excessive vibrations may be caused by a fault in the machine that must be immediately signalled and eliminated to protect the reliability of the machine and/or cause damages to the operator's health. Always work in suitable environmental conditions (e.g. with perfect visibility, with ground able to support the weight of the working vehicle - machine unit, with gradients that allow suitable vertical and lateral stability of the working vehicle - machine unit etc.).

2. SAFETY REGULATIONS AND PREVENTION OF ACCIDENTS

2.1. GENERAL RULES

Correct use of the machine, strict observance of the Standards indicated in this instruction manual and the rigorous application of all precautions aimed at preventing dangerous situations, contribute to averting accidents or injuries, ensure better and longer operation of the machine and reduce faults to a minimum.
"BERTI Macchine Agricole S.p.A." declines any responsibility, objective or subjective, if the indications contained in this instruction manual are not respected.

 PERICOLO	The machine may not be used in any sector other than agriculture. Any use other than the one indicated should be considered inappropriate.
	The machine must be used by a single operator driving the working vehicle.
	It is mandatory for the user to check the correct working vehicle - machine coupling. The weight that the operating machine can lift must be greater than the weight of the machine.
	Before leaving the operating machine and before any maintenance operations on the machine, engage the parking brake, switch off the operating machine motor, disconnect the power socket, remove the ignition key from the dashboard, keep it safe and wait 5 minutes inside the cabin to allow the rotor and relevant tool parts to stop completely.
	It is prohibited to abandon and/or leave the working vehicle-machine unit when the working vehicle is running.
	It is prohibited to use the machine if the working vehicle, to which it is coupled, does not have a cab with laminated/shatter-proof/strengthened windows and fixed guards (e.g. metal grid). The final user must provide the tractor with guards suitable to resist the impact with the materials/objects thrown at high speed from the machine depending on the current state of the art technologies and must contact the manufacturer to request all necessary information.
	During use, the user must have proper visibility of the working areas that present dangers, therefore the mirrors and the windows of the tractor must be properly cleaned.
	During the operating phases, the user must always stay inside the cabin, where he is safe. It is strictly forbidden the operation with the doors/windows open. Danger from thrown objects!
	The machine must be used exclusively by authorised, instructed and trained operators. The operator, besides having read and understood the instructions contained in this manual, must also be sufficiently prepared on the proper use of the machine and must have a driving licence and must be an adult. The operator must contact the manufacturer if in doubt regarding use of the machine or interpretation of this manual.
	Never use the machine without knowing its features.
	The manual must always be on hand such that it can be consulted when necessary. If it should be lost or damaged, request a replacement copy from the manufacturer.
 ATTENZIONE	The user must use all the safety devices and personal protection equipment (P.P.E.) during machine use, adjustment, repair and handling phases. 
 PERICOLO	During use, if operating with dry products (hay, straw, etc.), the machine may generate dust. The filters of the cabin ventilation system should be periodically checked and operators should always wear proper protection devices for the respiratory system, such as anti-dust masks.
	The operator assigned to the machine must not wear clothing that can cause entanglement.
	It is strictly forbidden to use the machine for lifting persons, animals or objects.
	It is strictly forbidden to use the machine for transporting persons, animals or objects.
	It is strictly forbidden to use the flexible tubes as supports; these components are mobile and do not offer proper support.
	The operating area must be thoroughly inspected before using the machine, paying attention to remove any stones, iron residues, steel cables, manholes, strains and all those materials and obstacles without any limitation which may constitute a source of danger, accidents and serious damage to the user, people, animals and things.

 PERICOLO	The operator must make sure that no person or animal stops within the radius of action of the same during machine functioning. The user is responsible of stopping the machine immediately and clearing the machine operating area from people and animals. Never activate the machine near persons and animals standing or transiting within the radius of action of the machine.
	If the machine is used in public areas and on roads, take all necessary precautions for the safety of persons, animals and property, for example, using safety personnel, warning signs, placing them at the ends of the machine operating area, according to the laws in force in the country of use.
	Never work in areas with strong counter slope, on slippery surfaces and in areas / zones that reduce the adhesion of the tractor to the ground. Pay utmost attention to changes of direction.
	Use the machine during the day and under conditions of perfect visibility.
	It is strictly forbidden to operate in adverse environmental conditions, for example during storms, snows, in windy, rainy or cloudy days, etc.
	Avoid working on muddy, sandy or soft terrain.
	Do not use the machine if you are tired, ill or under the effect of alcohol, medicines or drugs.
	Carefully check the machine each time before starting it.
	Before using the machine, make sure that all safety devices are properly in place and in good conditions.If there are failures or damage to the guards, replace them immediately.
	It is strictly forbidden to remove or tamper with the guards and/or safety devices.
	Make sure that the safety pictograms are in proper conditions, readable and clean. If the pictograms have deteriorated, they must be replaced with other original versions requested from the manufacturer and placed in the position indicated by the use and instruction manual (paragraph 2.3.2). If necessary, clean with a damp cloth.
	The signs on the machine provide important indications: follow them for your safety.
	It is strictly forbidden to perform any modification that may alter the original condition of the machine.
	Any arbitrary modification made on this machine lifts the manufacturer from any responsibility for damage or injuries that could result to operators, third parties or to objects.
	Keep the machine free from foreign materials (debris, tools, other items), which may damage the operation or the operator.
	The following paragraphs list other highly important safety standards. It is mandatory to read the entire instruction manual before using the machine.

2.2. FIRE-FIGHTING MEASURES

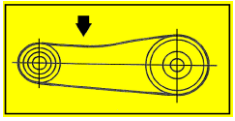
 ATTENZIONE	Keep an extinguisher with suitable capacity on board the working vehicle and periodically service the same. The hand extinguisher may only be used by personnel that know how to use it.The user is therefore responsible for providing proper training via particular courses.
	The personnel that use the machine must know the main intervention techniques in case of fire.
	Do not use the machine in areas that present explosion and/or fire hazard.
	Maintenance residues, such as, straps or replaced materials containing flammable residues must be kept away from sources of ignition and disposed of in accordance with applicable laws in the country of use.
	Use appropriate extinguishing means: e.g carbon dioxide, foam, chemical powder.
	Do not perform any welding near containers, tubes, tanks, electric wires, or flammable materials in general.
	In case of welding protect the flammable parts with appropriate screens.

2.3. SAFETY SIGNS

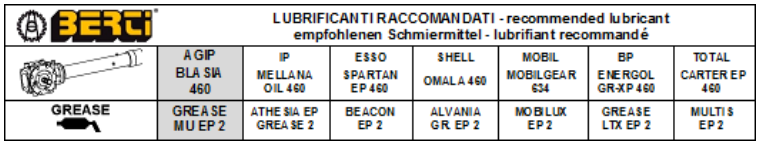
Make sure the safety pictograms are in good conditions. If the pictograms have deteriorated, they must be replaced with other original versions requested to the manufacturer and placed in the position indicated by the use and maintenance manual. Make sure that the safety pictograms are readable. Clean them using a cloth, water and soap.

2.3.1. DESCRIPTION OF THE PICTOGRAMS PLACED ON THE MACHINE

1		**ATTENTION:** indicates the following hazards: do not stand between the equipment and the tractor, pay attention to the rotating parts, do not stand behind the tractor, risk of shearing, pay attention to the rotating tools for your hands and feet.
2		**ATTENTION:** indicates the following hazards: pay attention to hot parts and to the foldable parts of the machine, pay attention to the projection of objects.
3		**ATTENTION**: read the use and maintenance manual carefully, every action on the machine should be performed after switching off the tractor, removing the ignition key and inserting the hand brake, pay attention to the pipes under pressure

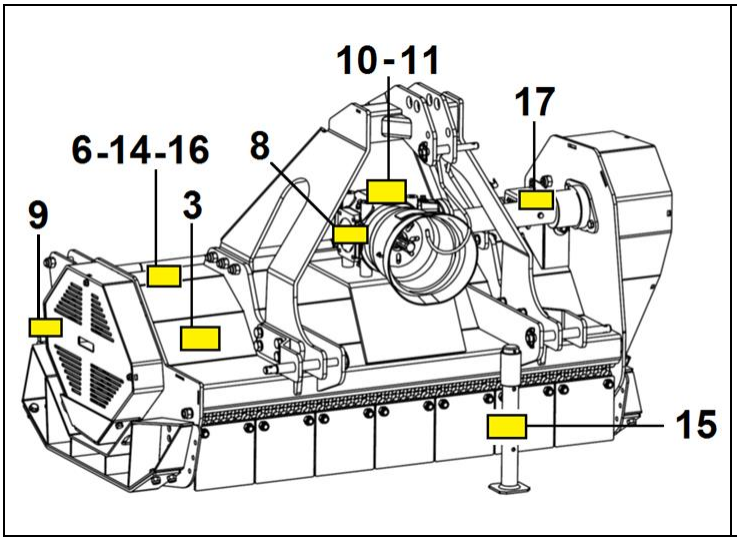
4		**WARNING-DANGER** minimum safety distance 50 m.	**5**		**WARNING - DANGER** of coming into contact with moving elements. Do not place your hands and feet near the transmission belts.
6		**PERSONAL PROTECTIVE EQUIPMENT.**	**7**		**LIFTING POINT.**
8		**OIL LEVEL.**	**9**		**GREASING POINTS.**
10		540 rpm, speed and rotating direction PTO	**11**		1000 rpm, speed and rotating direction PTO
12		**TENSIONED BELTS.**	**13**		**AUTOMATIC BELT TENSIONER**.

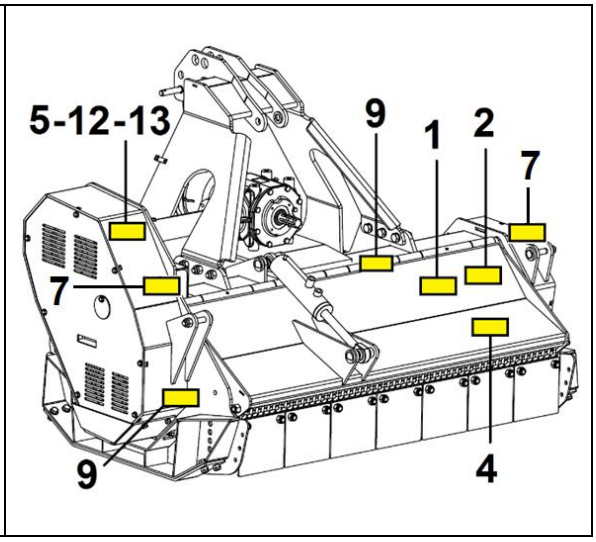
14		**GENERAL WARNINGS.**	15		**RESTING FOOT SAFETY LOCK.**
16		**NOTES ON WARRANTY.**			

17		**RECOMMENDED LUBRICANTS.**

2.3.2. POSITION OF PICTOGRAMS ON THE MACHINE

The pictograms are inserted as indicated in diagram:





3. USE

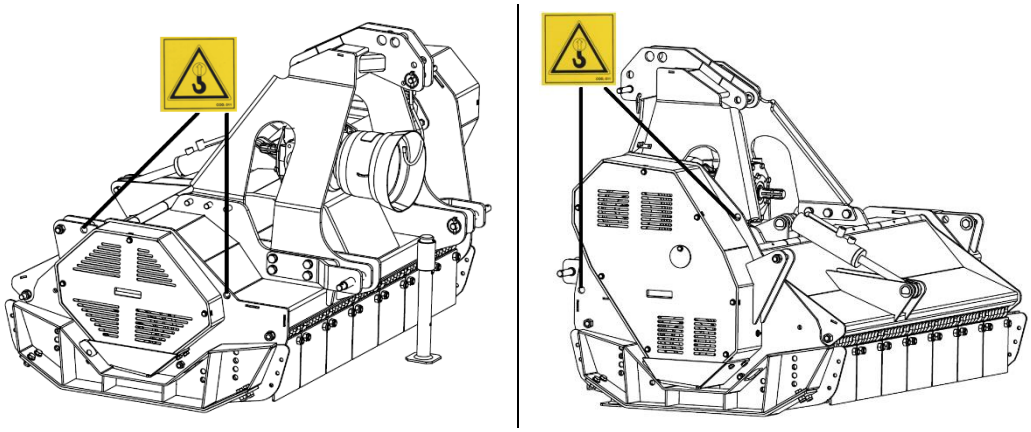
3.1. INTRODUCTION

	Before using the machine, carefully read and understand the instruction manual and get familiarised with the machine. The machine may only be used by expert and properly trained users.

ATTENZIONE	Keep all the parts of your body inside the tractor cabin, to reduce to a minimum the exposure to any external dangers such as thrown objects.
	Before climbing down from the working machine, block the working vehicle safety lever, switch the working vehicle engine off, remove the ignition keys from the dashboard and keep them in a safe place and wait inside the cab for 5 minutes for the rotor and relative tools to come to a complete standstill.
	The safety of the user and of the people around him depends on his judgement and prudence in the use of the machine. Therefore the functions of the machine and the safety standards must be properly known.
PERICOLO	The user must use all the safety devices and personal protection equipment (P.P.E.) during machine use, adjustment, repair and handling phases. 
	The machine must always be in perfect working condition and must be repaired only with original spare parts.

3.2. HANDLING AND TRANSPORTATION

Pay utmost attention to safety during the loading and unloading operations, that must be performed only by specialised personnel.
When lifting the machine you must use the appropriate lifting points, indicated in the pictograms.
Visually check the machine before handling it as to make sure that the unstable parts do not represent a danger.

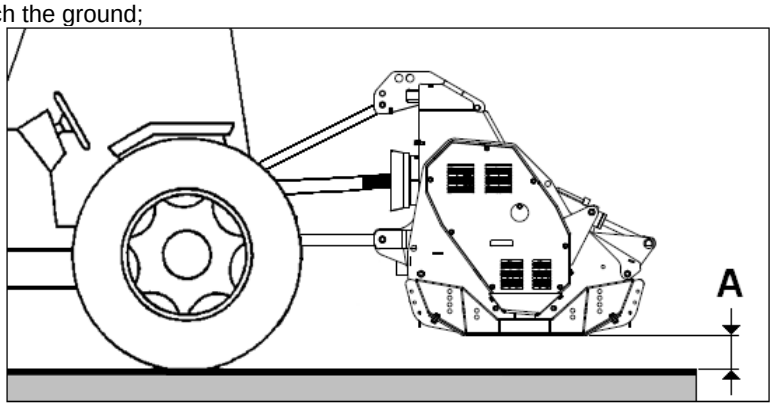
	Never lift or handle the machine anchoring it to the rotor!
ATTENZIONE	The manufacturer declines any responsibility regarding any damage to people, animals and things due to incorrect handling of the machine using lifting and transportation means of lower capacity than the weight values indicated in the table from paragraph **1.5.3. TECHNICAL DATA**. Once the machine is loaded onto the means of transport it must be fastened using the relevant anchorage devices.
CAUTELA	
	The machine is delivered assembled, in order to put into use it must be connected to the operating machine.

3.2.1. TRAVEL ON PUBLIC ROADS

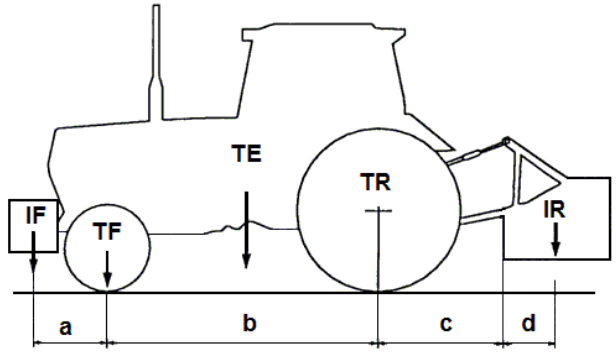
When travelling on public roads, the machine must be in the transporting position, the power socket of the operating machine must be off and the rotors and relevant tools must be stopped.
Before transport, check that all machine parts are integral and in good working order.

ATTENZIONE	If the machine must be transported on a public road, the rules of the road must be scrupulously obeyed, paying the utmost attention to travel at a safe speed.
	Road transportation must be performed paying maximum attention in order to avoid putting persons or other vehicles in danger.
	During transport, the machine must be fastened down well and always remain within the clearance of the working vehicle.
	Before starting the transportation on the public road, you must install (if necessary) optional light bars.
	The vehicle must have an orange or yellow flashing light.
	Before going onto the public road from a non-paved or dirty area, the tyres of the operating machine must be cleaned of any residue of mud.

3.2.2. MACHINE TRANSPORT PROCEDURE

	Before being transported, all machine parts must be intact and in good conditions.
	1. Disengage the P.T.O. and wait for the rotor to stop completely;
ATTENZIONE	2. Lift the machine at least 30 cm off the ground (A) so that the transmission elements do not touch the ground; 
	The machine weight changes the stability of the tractor-machine assembly, influencing its steering and braking capability. Therefore proceed at a moderate speed.

Particular attention should be paid to the front axle that must always be loaded with at least 20% of the whole weight of the machine and operating machine combined.
Check the lifting capacity and stability of the operating machine with the following formula and, if necessary, place ballast at the front.



$$I_{F,\,min} = \frac{(IRx(c+d)) - (TFxb) + (0{,}2xTExb)}{a + b}$$

TE = Weight of the tractor (empty)
TF = Front axle load (empty tractor)
TR = Rear axle load (empty tractor)
IR = Rear mulcher weight/rear ballast
IF = Front mulcher weight/front ballast

a. **Mulcher distance from the centre of gravity**
b. **Front/Front Ballast at the centre of the rear axle**
c. **Tractor wheelbase**
d. **Distance from the centre of the rear axle to the centre of the ball of the tractor's parallels**
e. **Distance from the centre of the tractor's parallels' ball to the centre of gravity of the rear mulcher/rear ballast**

N.B.: if the machine is mounted on certified agricultural tractors registered before the 6th May 1997, the following relationship should also be checked: **M<0.3xT**.

3.3. VISIBILITY

ATTENZIONE	The work areas can be controlled with the working vehicle rear view mirrors and the operator's sight. While moving in reverse, dark areas may be created that cannot be seen using the rear view mirrors.

3.4. HITCHING THE MACHINE TO THE TRACTOR

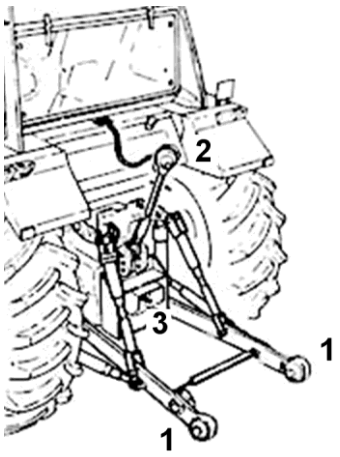
Before installing the machine, make sure that it is in a perfect condition, placed on the ground, levelled and in stable position, that there is the proper amount of lubricant, that all parts subject to wear and/or to deterioration are efficient and that the protections are complete and functioning.

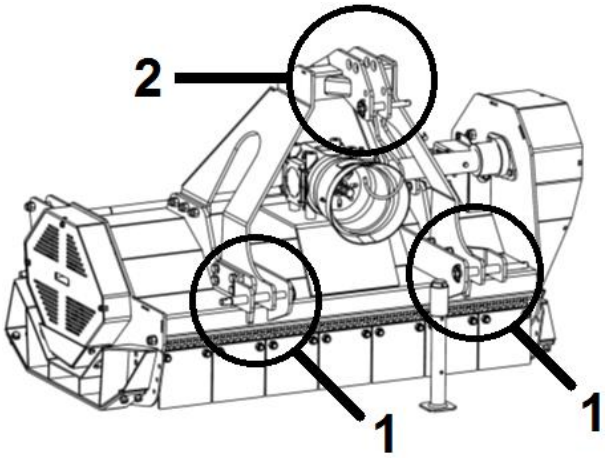
PERICOLO	Checking the correct machine - operating machine combination is mandatory. The lifting capacity and the stability of the tractor must comply with the parameters described in chapter 3.2.2.
	It is prohibited to stop between the machine and the working vehicle during the hitching phase and all unauthorised persons must be moved away from the machine working range.
	Before using the machine, the operator must know the commands and the features of the machine.
ATTENZIONE	Always keep all the parts of your body inside the tractor cabin, to reduce to a minimum the exposure to any external dangers such as thrown objects.
	Before leaving the operating machine and before any maintenance operations on the machine, engage the parking brake, switch off the operating machine motor, disconnect the power socket, remove the ignition key from the dashboard, keep it safe and wait 5 minutes inside the cabin to allow the rotor and relevant tool parts to stop completely.

3.4.1. THREE-POINT CONNECTION PROCEDURE

The machine must be connected to the operating machine with a power socket activated at 1000 rpm (on request 540 rpm), of a suitable weight and power, compliant with relevant laws in the country of use.

	The operations described below may become dangerous; proceed with care and attention on surfaces that ensure stability of the machine and the operating machine.
ATTENZIONE	The user must use all the safety devices and personal protection equipment (P.P.E.) during machine use, adjustment, repair and handling phases. 
PERICOLO	Carry out the following procedure: • Remove the safety pin and the pins from the connection inlet 1 of the machine; • With the tractor in reverse and activating the elevator, make the lower arms 1 match the lower corresponding connection inlet 1 of the mulcher; • Insert the pins and lock them with the relating safety pins; • Connect the third point of the tractor in the same way 2, with the corresponding inlet 2 on the machine; • Adjust the third point so as the machine stands horizontally as regards the ground; • Lift and fix every supporting foot on the machine.





- Insert the Cardan shaft onto the splined shaft of the machine, holding the safety pin pressed. Release the pin and retract with the Cardan until the pin itself engages in the relevant seat with an audible "click". If you do not hear the "click", repeat the procedure.

ATTENZIONE

Do not use a cardan shaft without proper protection that complies with legal requirements.

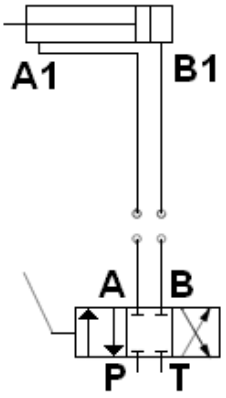
Check that all safety pins are properly inserted and functioning correctly.
Make sure that you inserted the anti-threading devices in the coupling pin.

- Clean the operating machine's hydraulic system connections with a cloth in order to remove any contaminants;

- Clean the connections of the hydraulic pipes of the machine using a cloth, in order to remove all possible contaminants;

PERICOLO

- Connect the rear bonnet hydraulic opening/closing tubes;

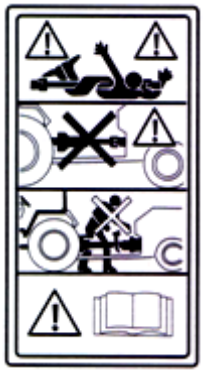
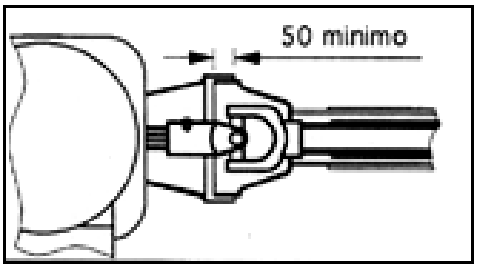
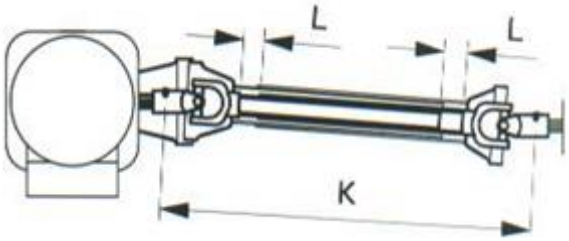


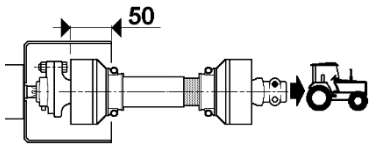
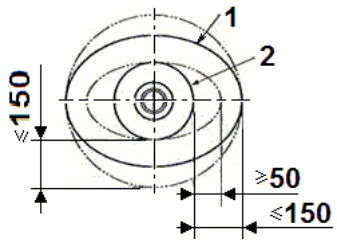
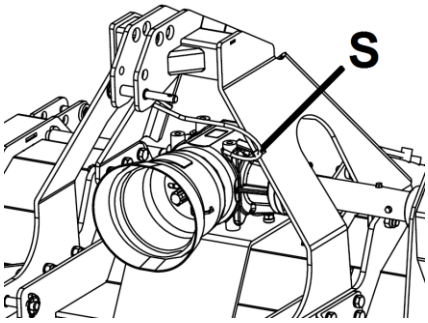
A – A1: open rear bonnet;
B – B1: close rear bonnet.

- Lift the machine from the ground and make a few movements with working vehicle lifting to make sure that hitching has been successful. Then place the machine on the ground again, taking care not to crush it and turn off the tractor;

- The machine is ready to be started.

3.5. CARDAN SHAFT

<table>
<tr><td> 
PERICOLO</td><td>Avoid stepping over the cardan shaft at all costs, whether it be moving or stopped.</td></tr>
<tr><td>  </td><td>Before performing any operation, carefully read the instruction booklet attached to the cardan shaft.</td></tr>
<tr><td>  </td><td>During operation, the cardan shaft may generate dangerous situations.
Therefore you should:
Read and store the use and maintenance booklet near the cardan shaft;
Make sure that the cardan shaft is appropriate for transferring the required power;
Only use the cardan shaft delivered with the machine;
Make sure that the guards are properly installed, complete and functioning;
Replace the worn, damaged or missing guards;
Switch the operating machine engine off before working on the cardan shaft or on the machine itself;
Do not allow children or unauthorised persons to go near the machine during operation and/or maintenance interventions;
When not used, place the cardan shaft on the appropriate support;
Wear suitable clothing (non-durable, non-attachable), especially tight clothing (e.g. work overalls with wrist and ankle protection).</td></tr>
<tr><td rowspan="3"> 
ATTENZIONE</td><td>When installing the cardan shaft, check that there is a sheath overlap of at least 50 mm when the shafts are straight.
  </td></tr>
<tr><td>When installing the cardan shaft for the first time, measure the distance K between the grooves of the P.T.O. buttons with the machine placed on the ground, levelled and with the multiplier aligned with the P.T.O. of the operating machine; if necessary adapt the length of the cardan shaft supplied, making sure that the telescopic tubes are staked by length as to create at the ends a jog L of 40 – 50 mm.
 
This operation must be performed at the first installation, after each replacement and every time the machine is installed on another operating machine.
After installing the cardan shaft, fasten the guard on both sides using appropriate chains.
When the machine is in stand by, place the cardan shaft on the appropriate supporting bar, provided on the three-point tiller to avoid any dirt accumulation, deformation or breakage of the guard.
After installing the cardan shaft, raise and lower the machine a few times to ensure that the tubes of the shaft are free and can move without jarring.</td></tr>
<tr><td>Grease the cardan shaft following the recommendations provided in the instruction manual of the cardan shaft.
Do not operate with cardan shafts without guards.</td></tr>
</table>

	Check that between the guard of the cardan shaft and the guard mounted on the PTO of the machine, a minimum overlap of 50 mm is present, as required from the safety standards.
	Check that between the guard of the cardan shaft and the guard mounted on the PTO of the machine a minimum radial space between 50 and 150 mm is present so as to allow a hand to be inserted. 1 – machine protective cap 2 – cardan shaft protective cap
	Check the rotating direction of the PTO of the cardan, on the tractor, looking from the rear side, it should rotate in clockwise.
	When not being used, the cardan shaft must be placed on the suitable support **S** located on the three-point tiller in order to avoid dirt accumulation, deformation and breakage of the protection.

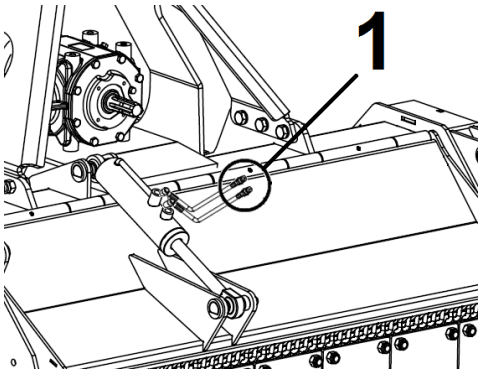
3.6. CARDAN SHAFT SPECIFICATIONS

The cardan shaft is the transmission component that drives the mulcher; it must be chosen based on specific criteria that define its power and length.
As far as its length is concerned, see chapter 3.5, for power use the chart shown here that indicates the minimum power that the cardan shaft has to sustain.

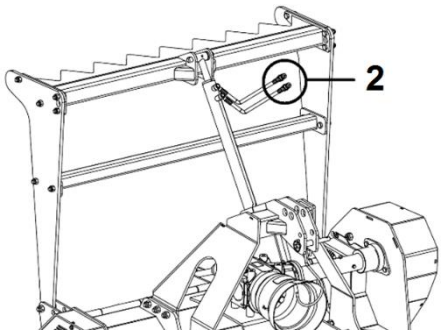
Model	kw	HP
ECF-EFX/MD 140	**59**	**80**
ECF-EFX/MD 160	**66**	**90**
ECF-EFX/MD 180	**66**	**90**
ECF-EFX/MD 200	**66**	**90**
ECF-EFX/MD 220	**66**	**90**

3.7. HYDRAULIC SYSTEM

The machine comes with a hydraulic jack for opening and closing the rear bonnet.
Check the hydraulic oil level.
The tractor unit must supply at least 140/160 bar.
The tractor unit must be equipped with a twin effect distribution system.
The quick connectors 1 must be compatible with those on the machine, then proceed to connect.
Ensure that no people are around the equipment; move the command distribution lever of the hydraulic jack slowly to check bonnet opening / closing.

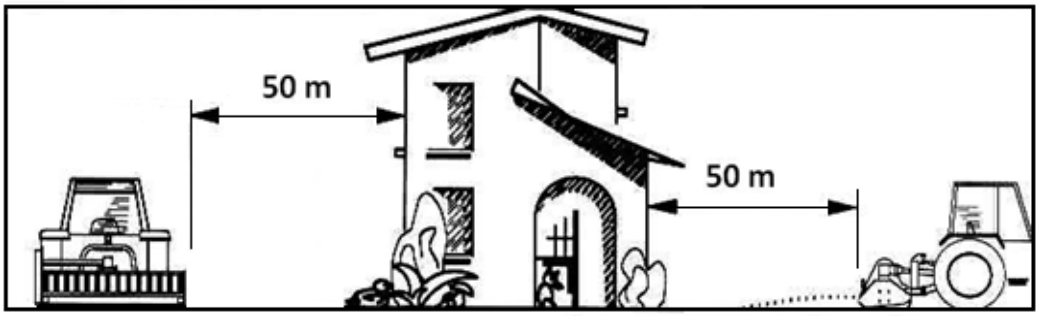


IMPORTANT: connect the 2 tubes 1 as a pair to the tractor distribution system. After connecting the tubes, open and close a few times to bleed any air bubbles that may have formed inside the jack.

The machine may be equipped with (on request) a hydraulic jack for a branch removal arc. Check the hydraulic oil level. The tractor unit must supply at least 140/160 bar. The tractor unit must be equipped with a twin effect distribution system. The quick connectors 2 must be compatible with those on the machine, then proceed to connect. **Ensure that no people are around the equipment**; move the command distribution lever of the hydraulic jack slowly to check arc movement.	

IMPORTANT: connect the 2 tubes 2 as a pair to the tractor distribution system. After connecting the tubes, perform some movement operations to discharge any air bubbles that may form inside the jack.

4. STARTING THE MACHINE

ATTENZIONE	Before starting the machine, you must follow the indications below:
	- Make sure that there are no persons, animals and things in the machine operating area as there are dangers, such as objects being thrown at high speed, that may cause serious injuries or death. Keep a minimum safe distance of 50 m. 
ATTENZIONE	- Do not allow any persons, animals or things to get near and to stand in the machine operating radius.
	- Always keep the guards in perfect state, properly placed and effective.
	- Before using the machine, the operator must know the commands and the features of the machine.
	- The user must use all the safety devices and personal protection equipment (P.P.E.) during machine use, adjustment, repair and handling phases. 
	- The operating machine must be off, the parking brake engaged, the power socket off, the ignition key removed from the dashboard and kept in a safe place by the user.
	- The rotor and relative machine tools must be stopped.
	- Always inspect the machine, controlling tightness of all screws and nuts and the presence of damage which must be repaired before start-up, in order to take the machine back to its original state.
	- Supervise the operating area removing any stones, metallic pieces, steel cables or any other dangerous materials. Take all the necessary safety precautions as to keep yourself and other persons safe. Protect the cabin or the control area against falling/objects thrown at high speed using anti-break / armoured / shatter-proof windows and fixed guards (e.g. metallic grid) that can resist to impacts in compliance to the state of the art technologies. Contact the manufacturer to request any further information regarding this case.

 ATTENZIONE	- Check that the position and the conditions of the ground in the work area do not jeopardise the stability of the working vehicle-machine unit in any way.
	- Make sure the safety pictograms are in good conditions. If the pictograms are deteriorated, they must be replaced with other original versions requested from the manufacturer and placed in the position indicated by the instruction manual.
	- Make sure that the safety pictograms are readable. Clean them using a wet cloth.

STARTING PROCEDURE

	1. Use the lifter controls to lower the machine until the slides touch the ground;
	2. Engage the PTO and gradually accelerate the operating machine until the motor is at a stable 1000 rpm (540 rpm on request);
 PERICOLO	3. Engage running mode and start the operating process;
	4. Proceed a short distance with the machine engaged;
	5. Decelerate the operating machine motor to minimum revs;
	6. Stop the operating machine engine, engage the parking brake, disengage the PTO, take the ignition key out of the dashboard and place it in a secure place;
 ATTENZIONE	7. Get out of the operating machine and check that there are no oil leaks around the gear box and extension;
	Never attempt to identify pressurised fluid leaks with your hands.
	8. Check the quality of the worked carried out; if the quality is not good enough, adjust the operating height using the elevator, avoiding contact between the cutting components (hammers or blades) and the ground; repeat the steps from point 1 and if necessary review the machine adjustment operations indicated in paragraph 4.1.1.

4.1.1. MACHINE ADJUSTMENT

4.1.1.1. ADVANCEMENT SPEED

Adjust the operating speed, using the size (diameter) and volume of the material to be mulched, as well as the degree of shredding to be obtained. The machine must be used only for the intended purposes.

 PERICOLO	Excessive speed stresses the mobile components of the machine, reducing their lifetime. In this case the amount of shredded material will be poor; it may cause the machine to throw large pieces of material that may put the operator in danger.

In the table bellow are indicated the recommended speeds that should be respected in order to obtain maximum performance and in particular:

RECOMMENDED FORWARD SPEED (km/h)

TYPE OF MATERIAL	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7	8
Sparse grass															
Grass that has not been mowed for months															
Grass that has not been mowed for years, very dense															
Vineyard pruning															
Apple - Pear tree pruning															
Olive - peach tree pruning															
Bushes - branches															

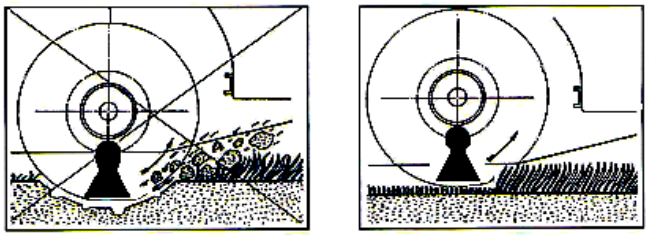
4.1.1.2. OPERATING HEIGHT

Before adjusting the machine cutting height, carefully read and fully understand the instruction manual.

All adjustment operations must be performed at authorised workshops by specialised personnel.

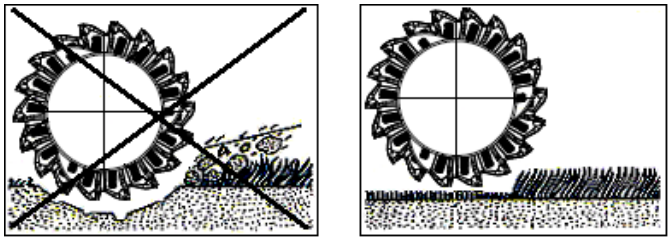
The work height must be adjusted in a way to prevent the cutting tools coming into contact with the ground, which may cause objects to flail out (figure 12-13).

ECF/MD MODEL



NO **YES**

EFX/MD MODEL



NO **SI**

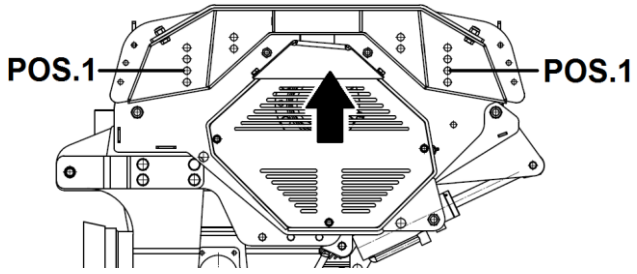
In order to adjust the operating height, work on the position of the rest slides of the machine like so:

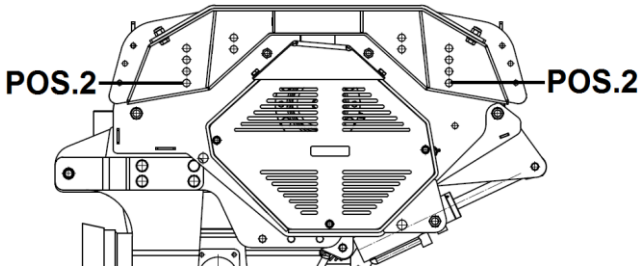
In order to perform the operations described below, make sure that the engine of the tractor is off, the parking brake engaged, the PTO disengaged, the ignition key out of the dashboard and properly stored.

1. Turn the machine over and rest it on suitable supports;

At the workshop, use appropriate equipment to support and move the machine especially regarding the maximum weight that can be lifted and sustained (see table 1.5.3. for data related to the machine) in compliance with the laws in force in the country of use.

2. Remove the nuts and bolts that keep the slides on the side;
3. Move the support slides from position 1 to position 2 or vice versa, depending on whether raising or lowering the operating height;





 ATTENZIONE	4. Lock the support slides with nuts and bolts in the required position;
	5. Check for any damage/breakage and proceed to immediate repair of the same using original spare parts;
	6. Replace the machine on the ground and repeat the actions described in paragraphs 3.4 and 4 "Connections and Starting the Machine" and continue working in the ways described in paragraph 4.2.
	Both support slides must be adjusted.

4.2. MACHINE RUNNING

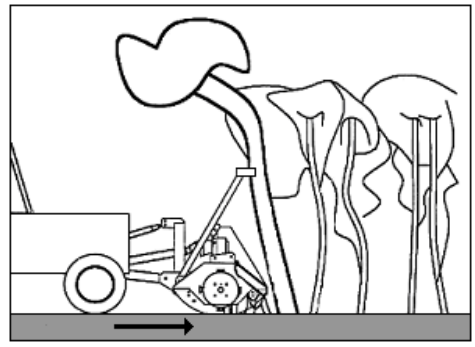
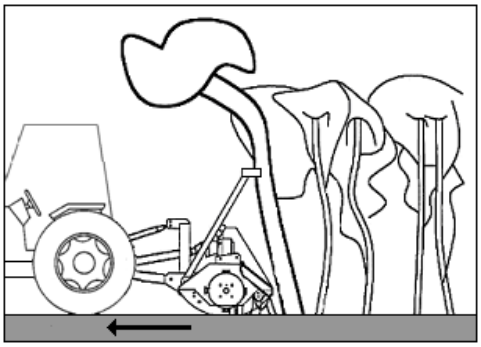
	Before starting the operating cycle, make sure that are met all indications in chapter 2 “ACCIDENT PREVENTION SAFETY STANDARDS” and those in chapter 3 paragraphs 3.1, 3.2, 3.3, 3.4 and 3.5.
	The operating area must be thoroughly inspected before using the machine, paying attention to remove any stones, iron residues, steel cables, manholes, strains and all those materials and obstacles without any limitation which may constitute a source of danger, accidents and serious damage to the user, people, animals and things.
	When working at the roadside, delimit the working range of the working vehicle using signs, safety staff and means in compliance with the Laws in force in the country of use.
	The operator must make sure that no person or animal stops within the radius of action of the same during machine functioning. The user must immediately stop the machine and keep away any unauthorised person. Never activate the machine near to persons standing or transiting within the radius of action of the machine.
 PERICOLO	Do not use the machine if more than 5 cm from the ground for felling trees or cutting hedges as the risk of flailing objects is high. It is prohibited to use the machine if the working vehicle, to which it is coupled, does not have a cab with laminated/shatter-proof/strengthened windows and fixed guards (e.g. metal grid). The final user must provide the tractor with guards suitable to resist the impact with the materials/objects thrown at high speed from the machine depending on the current state of the art technologies and must contact the manufacturer to request all necessary information.
	As at the beginning of the machine lifetime is performed a general settlement of all the mechanical and hydraulic connections, it is essential to carry out the controls of the machine with the utmost accuracy.
	Make sure that during operation all machine organs operate properly. The majority of the inconveniences and faults that may arise during the use of the machine are due to the fact that the fastening components loosen over time.
 ATTENZIONE	It is strictly forbidden to remove and/or change the guards installed on the machine.
	In the operations of change of direction, turn and reverse, slightly raise the head from the ground, after switching off the power to the machine, in order to avoid damage to the structure.
	It is strictly forbidden to adopt configurations that prevent the user working on the tractor from seeing the machine.
	It is strictly forbidden to adopt configurations that put at risk the stability of the tractor-machine assembly. The tractor must always remain on flat terrains that can sustain its weight. The user must periodically assess the risk, depending on the working area, assuming full responsibility for the damages caused due to any incorrect assessment.
	It is prohibited to use the machine as a support point for the working vehicle. The pressure exerted by the tractor would collapse the frame of the machine causing it to break.
	Never lean or press the rotor on logs or rocks because it could bend and then rotate unbalanced. Using the machine while damaged will affect its structural integrity due to unexpected and uncontrollable breakages.
	Never use the machine on stones, especially if there is very dry grass or bushes. The sparks that result when the tools come into contact with the stones may generate fire. In case of fire, immediately contact the emergency services immediately and move the operating machine-machine assembly away, if possible, taking it to a safe place; follow the procedure in paragraph 3.7. and go to a safe place.
	When work is compete the machine must be on the ground. Before climbing down from the working machine, block the working vehicle safety lever, switch the working vehicle engine off, remove the ignition keys from the dashboard and keep them in a safe place and wait inside the cab for 5 minutes for the rotor and relative tools to come to a complete standstill.

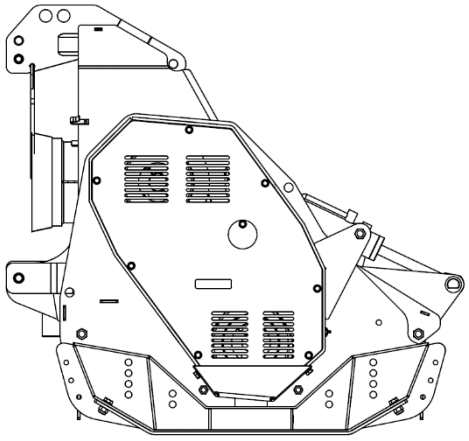
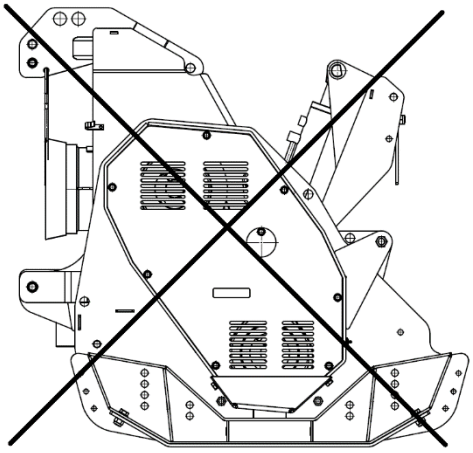
PERICOLO ATTENZIONE	If the machine should become entangled in dense vegetation or scrap iron e.g. scrub, shrubs, large quantities of bushes, steel cables and all those materials that can obstruct the machine, the working vehicle safety lever must be placed in the locked position, switch the engine off, remove the ignition key from the dashboard and keep it safe. It is also mandatory to wait inside the cab for 5 minutes in order to allow the rotor and relative tools to come to a complete standstill.It is then possible to climb down from the working vehicle. At this point the operator must manually free the machine following all applicable safety standards. Check for any damage/breakage and proceed to immediate repair of the same using original spare parts. If there is no damage, get in the tractor and proceed with the operation following the indications in paragraph 4 "Machine start-up" and paragraph 4.2 "Machine running".

MULCHING PROCEDURE

ATTENZIONE	When operating, the operating machine must always be on level ground and able to support the weight.
	It is recommended to perform the operations at a constant speed, appropriate for the quantity of material to be mulched. This way the production of shredded material will be optimal and the risk of ejection of large sized pieces will be reduced to a minimum.

Go near the area in which you want to operate and proceed as follows:

ATTENZIONE	1. With the operating machine motor at minimum revs, engage the power sockets;
	2. Accelerate gradually until 1000 rpm is reached (540 rpm on request);
	3. Start the operating cycle modulating the movement speed as for the machine to complete the shredding of the material and at the same time download on the ground the mulched product;
	If the vegetation is very thick or high, you may pass one time over it with the mulcher lifted from the ground and the second time with the mulcher on the ground to complete the operation.
	 

PERICOLO	The mulcher should not be moved to a new operating area if the rotor and the tools haven't stopped yet.
	Do not use the machine with the rear bonnet open or in a different position to as it was set by the manufacturer.  **YES**  **NO** The risk of projection is high. Any tampering makes the user liable for damage/injury caused to persons, animals and objects.

4.3. STOPPING THE MACHINE

To stop the machine, disconnect the working vehicle mulcher/hammer flail in a way to exclude the flow of oil to the machine.

PERICOLO	Make sure that during all operations, the operator stays inside the cabin at all times and there are no persons, animals or things in the machine action radius. Any operation on the machine must be performed with the working vehicle off, putting the working vehicle safety lever in the locked position, switching the working vehicle engine off, removing the ignition keys from the dashboard and keeping them in a safe place and waiting inside the cab for 5 minutes for the rotor and relative tools to come to a complete standstill.

4.4. UNHITCHING THE MACHINE

When unhitching the machine:

PERICOLO	1. Ensure that the operating machine-machine assembly is on stable and level ground;
	2. Disengage the power sockets on the operating machine and wait for the rotor and tools to stop;
	3. Put the machine on the ground without crushing it. The machine rotor and tools must be at a standstill;
	4. Bring the operating machine motor down to minimum revs, engage the parking brake, switch the motor off, remove the ignition key and keep safe;
	5. Descend from the driver position;
	6. Disconnect the hydraulic pipes;

 ATTENZIONE	When disconnecting the pipes, it is necessary to contain and collect any oil that flows out. The oil and all the containers that have come into contact with it must be disposed of in accordance with the laws in force in the country where the machine is used.
	7. Collect the hydraulic pipes using strips and secure them to the machine;
	8. Disconnect the cardan shaft using the appropriate triggers;
	9. Rest the Cardan shaft on the relevant support;
	10. Disconnect the tie rod of the third point;
	11. Disconnect the arms of the rear hydraulic elevator of the tractor from the parallel connection points of the machine;
	12. Return to the operating machine;
	13. Start the tractor and move away with care.
	The machine must be parked on flat land and within a protected area to prevent unauthorised personnel from approaching.

4.5. FLOODED ENGINE

	Before removing the machine clogs, carefully read and fully understand the instruction manual.
	Remember that any variation in field conditions, such as type or volume of the material to be mulched, can cause the machine to jam.
 ATTENZIONE	If the machine clogs, follow the indications in paragraph 4.4 “MACHINE DISCONNECTION” and bring the machine to an **authorised workshop**.

At the workshop:

 PERICOLO	1. Turn the machine over and rest it on suitable supports;
	In the workshop, use suitable equipment to handle the machine especially in terms of liftable and sustainable weight (see table 1.5.3 for data relative to the machine).
	2. Unjam the machine manually;
	3. Check for any damage/breakage and proceed to immediate repair of the same using original spare parts;
	4. After completing all operations, turn the machine over and place it on the ground;
	5. Repeat the actions described in paragraphs 3.4 and 4 “Machine connection and start-up” and restore the operating cycle following the methods described in paragraph 4.2.

5. MAINTENANCE

 ATTENZIONE	In the event of a breakdown, the user must carry out the machine stop procedure, bringing the motor down to minimum revs, engage the parking brake, switch off the motor, remove the ignition key and wait inside the cabin for 5 minutes to allow the rotor and tools to stop completely. Climb down to check the size of the problem and contact the authorised workshop in order to solve the problem.

Before starting any maintenance, the following operations must be carried out:

	Before performing any maintenance operation, carefully read and fully understand the instruction manual.
	Original spare parts must always be used.
 PERICOLO	The machine must be in an equipped and authorised workshop for all routine and extraordinary maintenance operations, with specialised staff. The machine must be at a standstill and unhitched from the working vehicle. It is prohibited to perform maintenance and repairs in the open and in places that are not suitably equipped.

PERICOLO	The specialised personnel must use all the safety devices and personal protection equipment (P.P.E.) during machine use, adjustment, repair and handling phases. 
	Any maintenance operation can be performed only after the temperature of the oil and other hot parts of the machine is below 60 °C.
ATTENZIONE	Do not perform repairs of which you have no knowledge. Always follow the instructions. If they are missing, contact the manufacturer.
	Do not use lifting points different from those prescribed.
	Make sure that the chosen lifting device is suitable to carry out operations in compliance with the safety Standards in force in the country of use.
	Any maintenance residues, such as, straps or replaced materials containing flammable residues must be kept away from sources of ignition and disposed of in accordance with applicable laws in the country of use.
	The gathered oil must be disposed of in compliance with the laws in force in the country of use.

5.1. MACHINE HOT POINTS

Before any maintenance operation, make sure that the temperature of hot parts is below 60°C.
Pay utmost attention to the:

- Drive sump;
- Gearbox;
- Gearbox extension;
- Pulleys and belts;
- Automatic belt tensioner;
- Hydraulic tubes;
- Belt tensioning support.

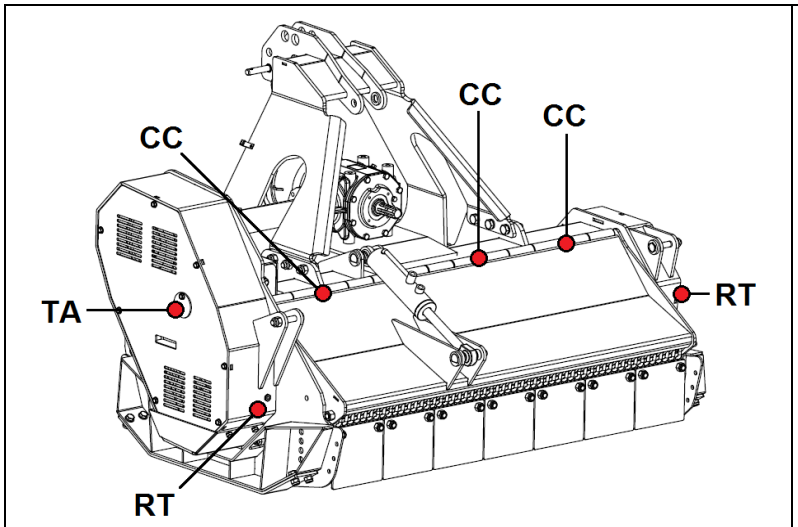
5.2. MAINTENANCE INTERVENTIONS

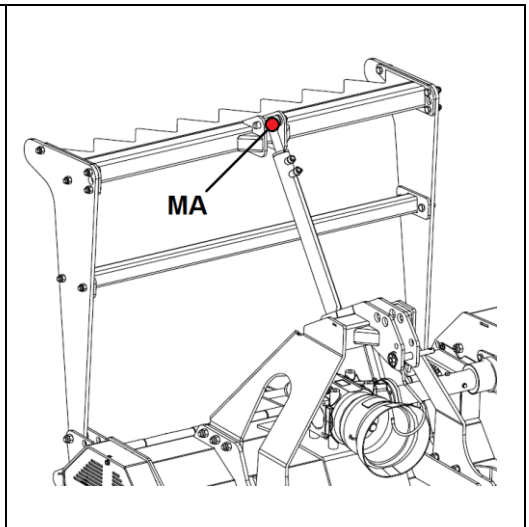
Qualified staff must precisely know and follow the indications and must stop and disconnect the machine following the indications in paragraphs 4.3. and 4.4.
The periodic controls and the maintenance operations described in this chapter must be performed in the times and ways established and are the operator's responsibility.
Failure to comply with rules and maintenance schedules undermine the proper operation of the machine and its duration and thus voids the warranty.
Increase the frequency of the maintenances in heavy duty conditions (frequent start-ups and shut-downs, prolonged winter, etc.).

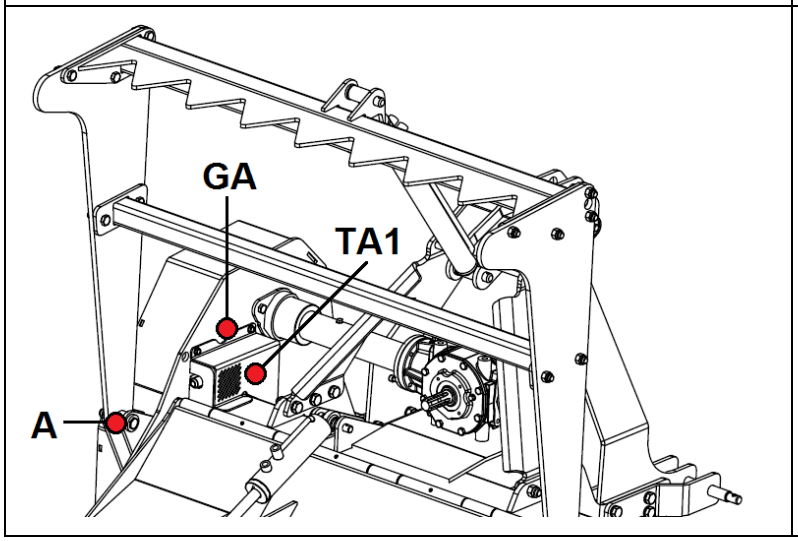
5.2.1. GREASING AND LUBRICATION

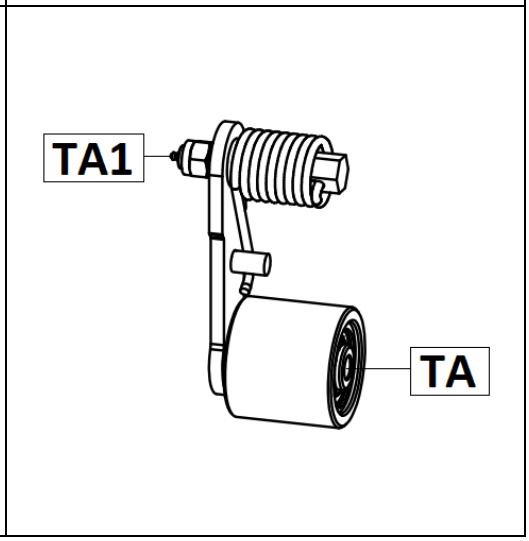
Periodic greasing and lubrication of the machine will maintain its performance and extend its lifetime.
Using a special greasing pump, thoroughly grease the points indicated by the sticker.
Only use a manual greasing pump, in order to prevent the breaking of bearing seals and grease passage pipes.

ATTENZIONE	Before taking any action on the transmission unit, properly clean the areas around the caps, to avoid any dirt intrusion inside the units.
	Always perform such operations on stable and flat ground in order to prevent non-authorised people from approaching.









Pos.	Name	Lubrication intervals	Notes
RT	Rotor	8 hours	Grease using the manual pump 1-2 times to avoid damaging the inner support seals;
CC	Hood hinge	50 hours (or when required)	Grease it using the manual pump 1-2 times.
TA	Automatic belt tensioner	80 hours (or during each belts' tension check)	Grease it using the manual pump 1-2 times. To grease the automatic belt tensioner it is necessary to remove the crankcase of the belts.
TA1	Automatic belt tensioner	8 hours	Grease it using the manual pump 1-2 times.
MA	Arc jack	50 hours (or when required)	Grease it using the manual pump 1-2 times.
A	Arc	50 hours (or when required)	Grease it using the manual pump 1-2 times.
GA	Tensioning hook	50 hours (or when required)	Grease it using the manual pump 1-2 times.

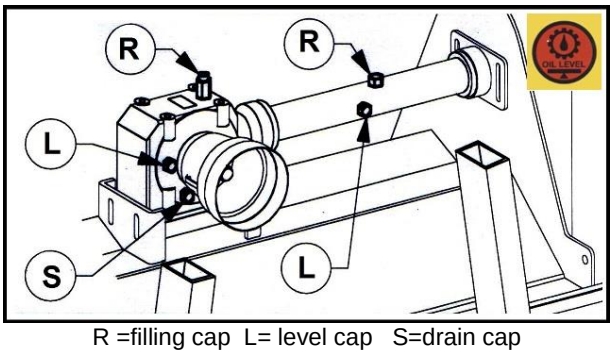
AC	Cardan Shaft	-	Grease as indicated in the use and maintenance booklet of the cardan shaft provided by the manufacturer.

LUBRICATION OF THE TRANSMISSION UNIT:

Before working on the transmission unit: reducer and extension, carefully clean the parts around the caps to avoid dirt getting inside the unit, work at the following pace:

1- During the first 20 hours of operation check oil levels: the oil must reach the hold of level L. If required, add oil from cap R, then check the oil level every 50 hours;
2- After the first 40 working hours replace the transmission unit oil completely by pouring it from cap S. Afterwards, repeat the same operation every 250 hours of work.

Recommended lubricant:
PETRONAS GEAR MEP 460



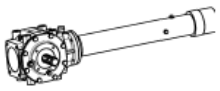
R =filling cap L= level cap S=drain cap

ATTENZIONE

Used oil must be properly recovered and should not be released in the environment, since, according to the prevailing legislation, it is classified as hazardous waste and as such should be given to specialised collection sites. Contact the "Consortium for used oils" for the collection of waste oil.

	Periodical greasing and lubrication of the machine will keep its performances high and increase its lifetime.

LUBRICANTS TO USE:

BERTI	LUBRIFICANTI RACCOMANDATI - recommended lubricant empfohlenen Schmiermittel - lubrifiant recommandé						
	PETRONAS	TAMOIL	ENI	IP	ESSOMOBIL	SHELL	TOTAL
	GEAR MEP 460	CARTER EP 460	BLASIA 460	MELLANA 460	MOBILGEAR 600XP 460	OMALA S2 G 460	CARTER EP 460
GREASE	AMBRA GRS PLUS EP2	TAMLITH EXTRA BLU EP2	GREASE MU EP 2	ATHESIA EP GREASE 2	MOBILPLEX EP 2	GADUS S2 V220 2	MULTIS EP 2

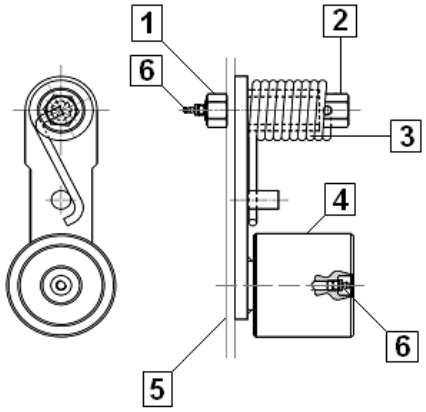
5.2.2. TRANSMISSION BELT TENSIONING

	Before adjusting belt tension, carefully read and make sure you have fully understood the instruction manual.
ATTENZIONE	**All adjustment operations must be performed at authorised workshops by specialised personnel.**
	Place the machine on levelled terrain, with the head resting on the ground, the engine stopped, the parking brake engaged, the PTO disengaged, the ignition key out of the dashboard and properly stored.
PERICOLO	Thanks to the automatic belt tensioner, is not necessary to adjust the belts tension. An intervention of the belts tension may be necessary only in case of: • Mechanical breakage of the automatic tensioner spring; • Loosening of the nuts that fasten the tensioner.

BELTS TENSION ADJUSTMENT PROCEDURE:

Proceed as follows to adjust the tension of the transmission belts:

1. Remove the belt cover;
2. After replacing the spring or any other damaged part, take the tensioning unit and place it on the side of the mulcher, inserting the hex bolt 30;

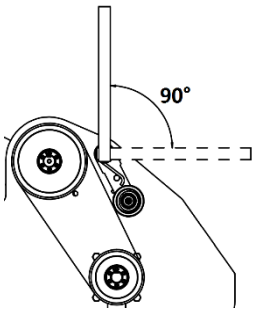


Pos.	Name
1	Self-locking nut M20
2	Hex bolt of 30
3	Tensioning spring
4	Sliding point
5	Machine side
6	Greaser

3. Turning the tensioning unit on the bolt with hex 30, lean the sliding roll on the belts;
4. After leaning the roll. using a 30 key, turn the bolt and lock the nut M20, fastening it using another 30 key;

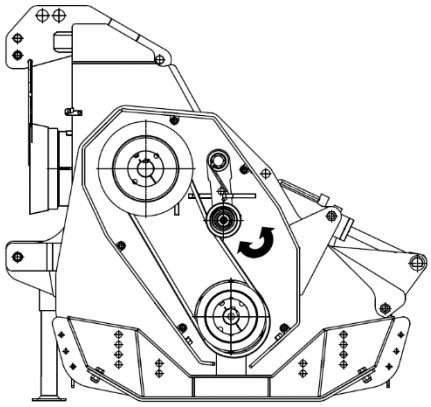
ATTENZIONE

Giving the correct PRE-LOAD to the spring, ensures proper tensioning of the belts!
The pin must be rotated by 90° (1/4 of a turn).
Torque wrench load: 65+5 Nm



PERICOLO

5. Lock the counter-nut M20;
6. Now, after properly tensioning the belts, check that the belt tensioning unit may rotate freely. Put pressure on the roll, moving it away from the belts for a few inches and then release it. The roll must run freely;
7. Remount the crankcase using the appropriate screws.



ATTENZIONE	**Never work without the belt protection casing.**

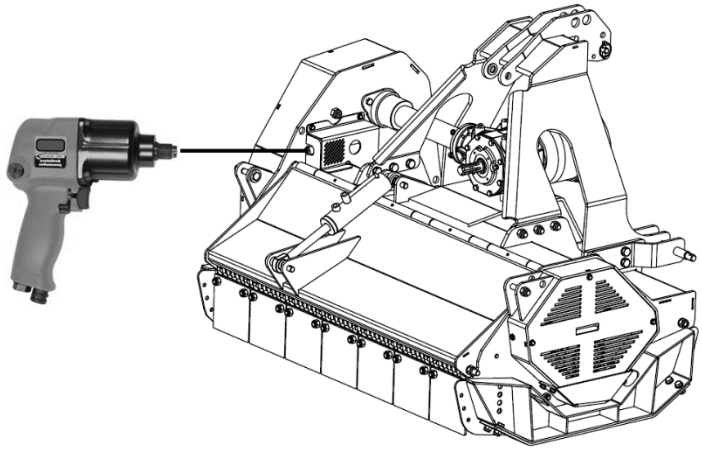
5.2.3. REPLACING THE TRANSMISSION BELTS

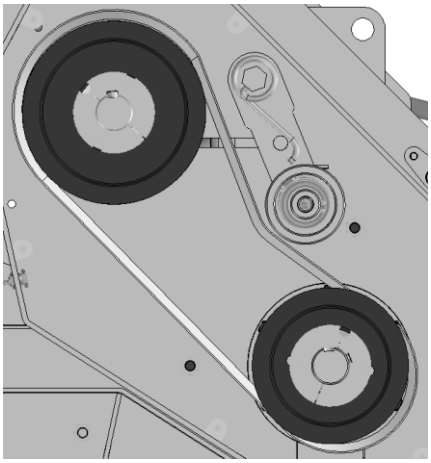
Replacing the transmission belts must be performed while the machine is on the ground, the operating machine stopped, the PTO disengaged, the ignition key out of the dashboard and kept safe.

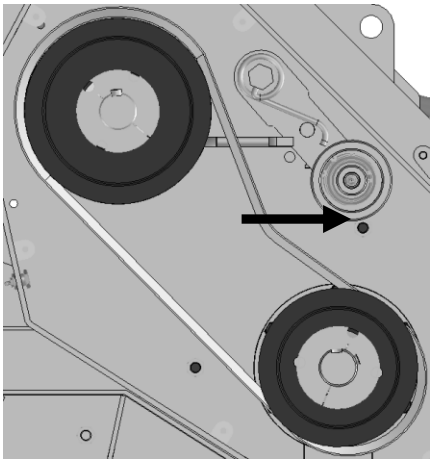
REPLACEMENT PROCEDURE

The transmission belts replacement operations must be performed while the mulcher is placed on the ground, the tractor stopped, the PTO disengaged, the ignition key out of the dashboard.

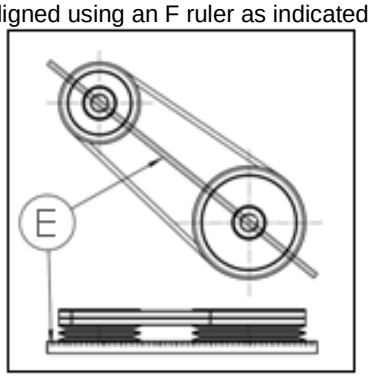
1. Remove the transmission covering casing;
2. With a pneumatic driver or a tube key, turn the threaded bar until the automatic tensioner is no longer in contact with the belts;
3. Now there should be no more pressure on the belts, thus allowing the operator to replace them;
4. When replacement is complete, loosen the threaded bar with a pneumatic driver of a tube key fully until the tensioner roller is resting on the belts. The roll maintained the initial pre-load and no further operations are required.







ATTENZIONE	The V-belts must be mounted without forcing them, without using screwdrivers, crowbars, etc. that may damage the belt itself. Proper assembly allows money and time saving and increases the belt lifetime.
	If the tensioning must be verified and the belt tensioner must be tightened, proceed as described in this chapter.
PERICOLO	**NEVER WORK WITHOUT THE BELT PROTECTION CASING!**

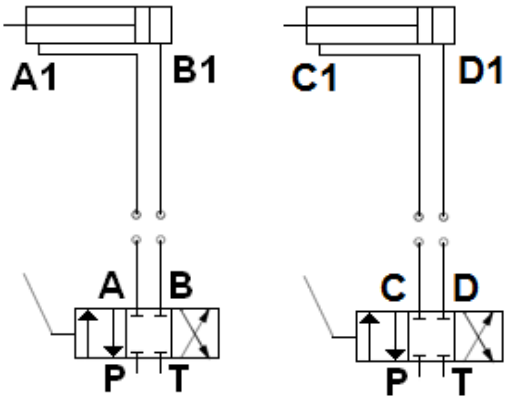
ATTENZIONE	Always check that the pulleys are aligned using an F ruler as indicated in figure. 

5.2.4. HYDRAULIC SYSTEM

ATTENZIONE	Visually check the machine, make sure tat there are no loosened couplings, damaged tubes, cuts or any other signs of wear. Tighten the loosened couplings and replace the damaged or worn tubes.

The hydraulic system diagram is shown in the picture and is made up of:

A – A1: open rear bonnet;
B – B1: close rear bonnet;
C – C1: arc movement;
D – D1: arc movement.



For hitching the machine to the working vehicle, refer to chapter 3 paragraph 3.4

HYDRAULIC TUBE REPLACEMENT PROCEDURE

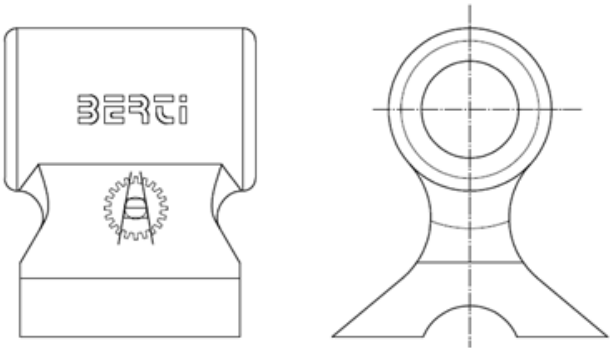
ATTENZIONE	1. Precisely identify the damaged tube and loosen using an appropriate key the two connection points, paying attention to any possible leakages of hydraulic fluid;
	2. Replace the damaged tube using only original spare parts;
	3. Before installing the new tube make sure that the connection points are in proper state (threads, seals, etc.);
	4. With the proper tools screw clockwise the fittings of the hydraulic tubes that present leakage. Do not tighten excessively otherwise you will damage the threads of the fittings.
	Any maintenance residues, such as, straps or replaced materials containing flammable residues must be kept away from sources of ignition and disposed of in accordance with applicable laws in the country of use.
	The gathered oil must be disposed of in compliance with the laws in force in the country of use.

5.2.5. TOOLS WEAR CHECK

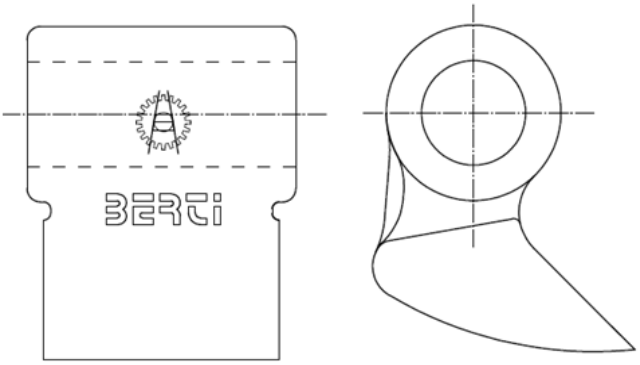
Make a visual check for wear on mulching tools before every use. Replace when an imperfect size of material or increases in power absorption are noted.This is possible by a sensitive increase in the temperature of the working vehicle oil. If the machine is used with tools that are not sharpened, its performance will decrease.
The dimensions and weight of the tools are strictly controlled: if they are completely replaced, the rotor may not require dynamic balancing again (refer to: "TOOLS REPLACEMENT PROCEDURE").
Damaged or tools that are excessively worn might transmit vibrations to the machine; in this case, the operating cycle should be stopped immediately and it should be restored only after replacing the tools.

Replace the worn and/or damaged tools with original tools marked with the Berti brand.
ECT/MD series hammers:

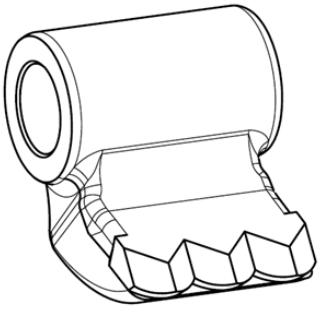
- Twin cut hammer



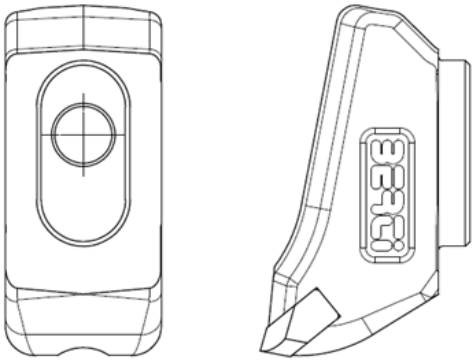
- Single cut hammer (optional)



- Cemented carbide single cut hammer (optional)



The lifetime of the tools depends on the type of operation and on the type of terrain being processed. They should be fully replaced after about 200 working hours.

ATTENZIONE	Replace the worn and/or damaged tools with original tools marked with the Berti brand. • EFX/MD series teeth: 

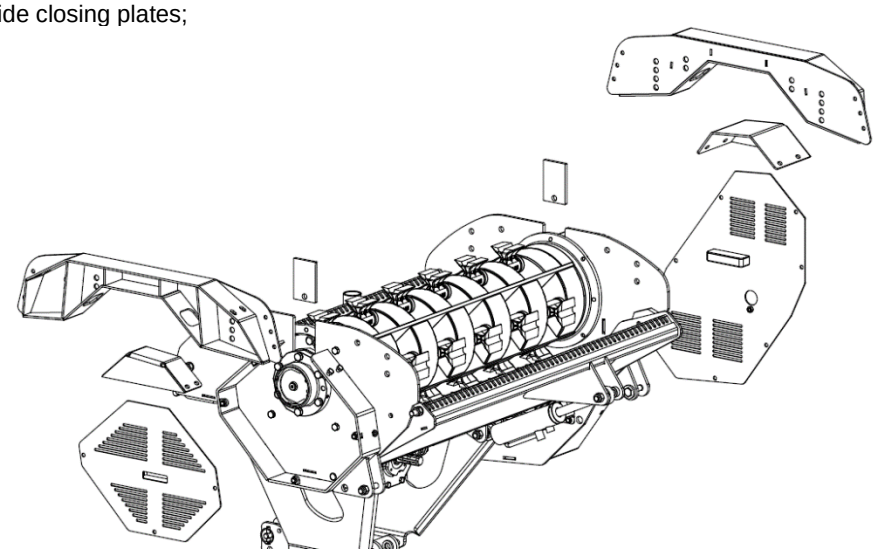
The lifetime of the tools depends on the type of operation and on the type of terrain being processed. They should be fully replaced after about 200 working hours.

5.2.5.1. TOOLS REPLACEMENT PROCEDURE

ATTENZIONE PERICOLO	In case only one tool should be replaced, it is recommended to replace the entire series. Using non-original tools can cause anomalous vibrations of the machine. When fitting tools, pay attention to which way around they should be fitted (only for single cut hammers). ECF/MD MODEL:  EFX/MD MODEL: 
	1. Turn the machine over and rest it on suitable supports;
	At the workshop, use appropriate equipment to support and move the machine especially regarding the maximum weight that can be lifted and sustained (see table 1 paragraph 1.5.3) in compliance with the laws in force in the country of use.

ECF/MD MODEL:

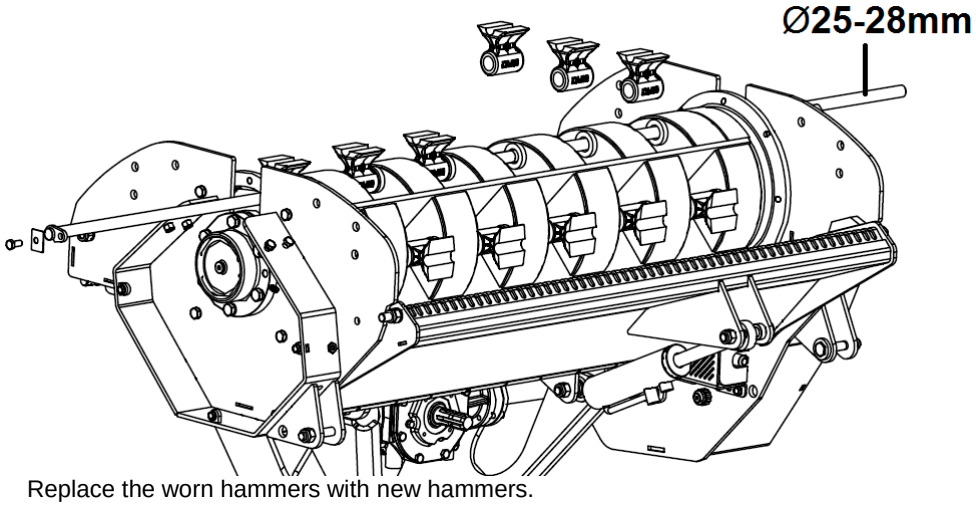
1. Remove the side slides, the transmission cover, the external side cover, the lower casing and side closing plates;



2. **R**emove the locking screws and the hammer support pin plate;
   With a 25-28mm pin and a mallet, start removing the hammer support pin taking care not to damage transmission parts.
3. When sliding the pin out remove the hammers one after the other;

ATTENZIONE

PERICOLO



4. Replace the worn hammers with new hammers.
   To refit the hammers, the pin just removed must be replaced. While moving the pin, insert the hammers one after the other;
5. Once the pin is fully inserted, refit the plate and fix everything with the screws. Turn the rotor 90° and repeat the operations from point 2 until all of the hammer rows have been replaced;

6. Refit the side closing plates, the lower casing, the external side cover, the transmission cover and the side slides;

7. Once all operations are complete, attach the machine to the appropriate lifting points, turn it over, rest it on the ground and repeat the "Connection and Starting the Machine" procedure in paragraphs 3.4 and 4.

When mounting the tools, pay attention to the assembly direction. If mounted in the wrong direction, the machine will not be able to cut.

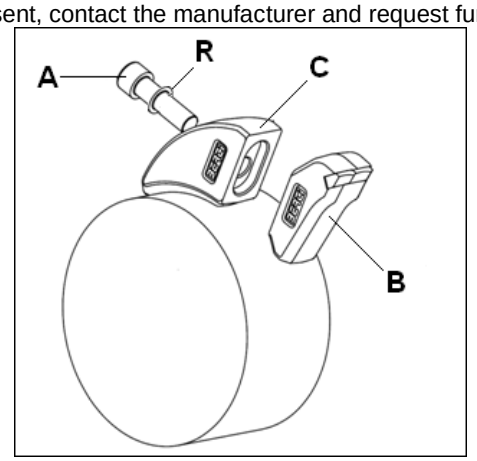
If after replacing the tools, the vibrations persist, proceed with a new dynamic balancing of the rotor at a specialised workshop.

Periodically check the tightness of tool nuts and bolts; if loosened they could damage the rotor and cause items to flail dangerously.

The original spare parts provided by our company ensure complete and correct use of the machine.

EFX/MD MODEL:

1. Remove the screws A completely, remove the grower washer R and hold the fixed tooth B in your hand. With the tooth removed, check for wear on the tooth holder C, in particular the oval shape of the hole, the tooth seat eyelet and wear around the edges. If any of the described phenomena are present, contact the manufacturer and request further instructions;



ATTENZIONE

PERICOLO

2. Replace the new fixed tooth B. Before positioning it on the tooth support of the rotor, clean it with a cloth and spread a layer of high temperature resistant silicone on the contact surface (red paste);

Recommended silicone	**Fischer SAT Art. 09271**

3. Fit the grower washer and the new screws and tighten with a torque of 640 Nm;

4. Repeat the operation on all of the other fixed teeth on the rotor.

5. Once all operations are complete, attach the machine to the appropriate lifting points, turn it over, rest it on the ground and repeat the "Connection and Starting the Machine" procedure in paragraphs 3.4 and 4.

If after replacing the tools, the vibrations persist, proceed with a new dynamic balancing of the rotor at a specialised workshop.

Periodically check the tightness of tool nuts and bolts; if loosened they could damage the rotor and cause items to flail dangerously.

The original spare parts provided by our company ensure complete and correct use of the machine.

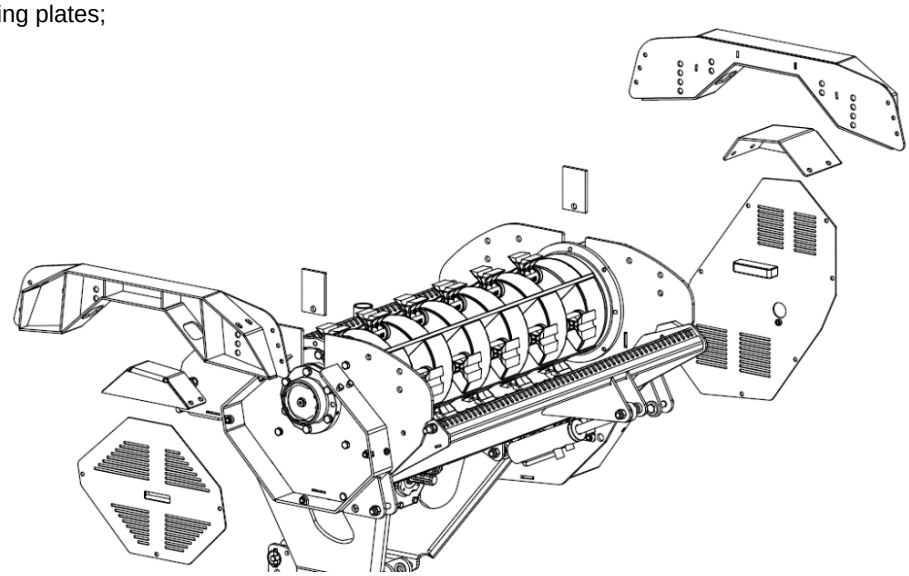
5.2.6. REPLACING THE ROTOR PINS

ATTENZIONE

1. Attach the machine to the appropriate lifting points, turn it over and rest it on suitable supports;

At the workshop, use appropriate equipment to support and move the machine especially regarding the maximum weight that can be lifted and sustained (see table 1 paragraph 1.5.3) in compliance with the laws in force in the country of use.

2. Remove the side slides, the transmission cover, the external side cover, the lower casing and side closing plates;



ATTENZIONE

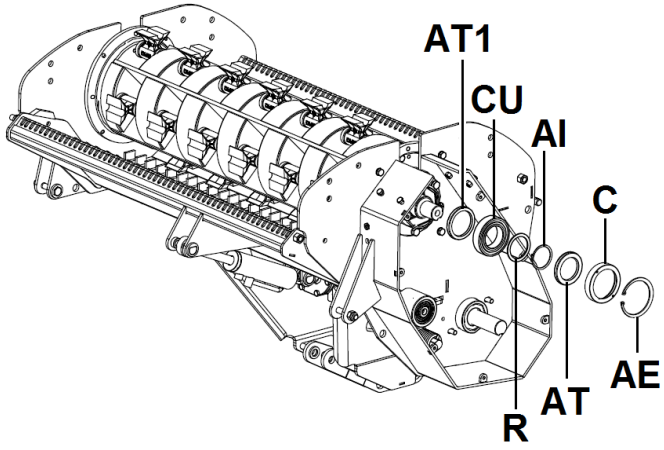
PERICOLO

3. De-tension the belts by turning the threaded bar that moves the automatic tensioner away from the belts (paragraph 5.2.3.);

4. Remove both pulleys and couplings as well as the 4 belts;

5. Use a hoist to support the rotor as soon as it is detached from the casing;

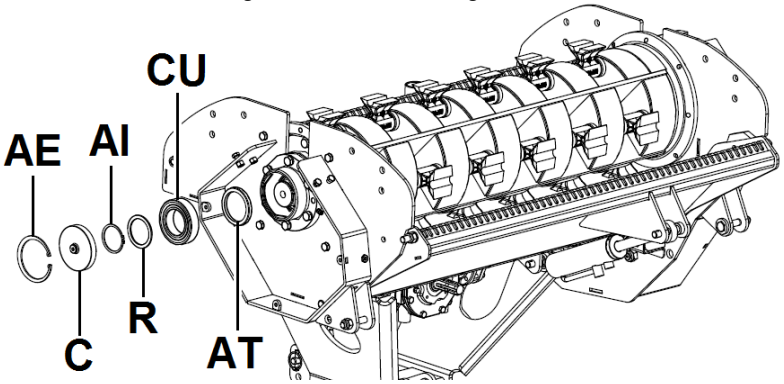
6. From the pulley side: remove the external snap ring AE, the cover C, the seal ring AT, the internal snap ring AI, the shoulder washer R, the bearing CU and the seal ring AT1;



ATTENZIONE

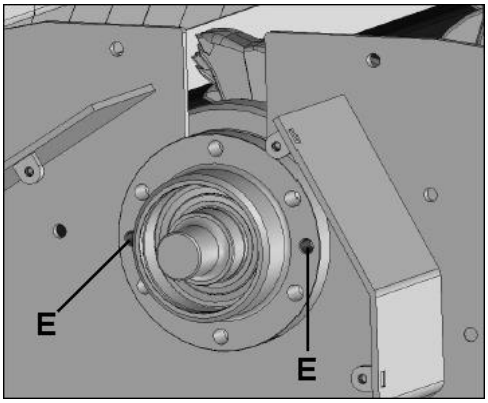
PERICOLO

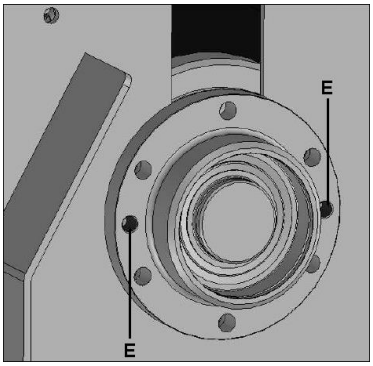
7. From the opposite side: remove the external snap ring AE; the cover C, the internal snap ring AI, the shoulder washer R, the bearing CU and the seal ring AT;



8. At this stage, unscrew the screws V that fix the rotor support to the casing;

9. Using the extraction holes E, remove the supports from both sides;

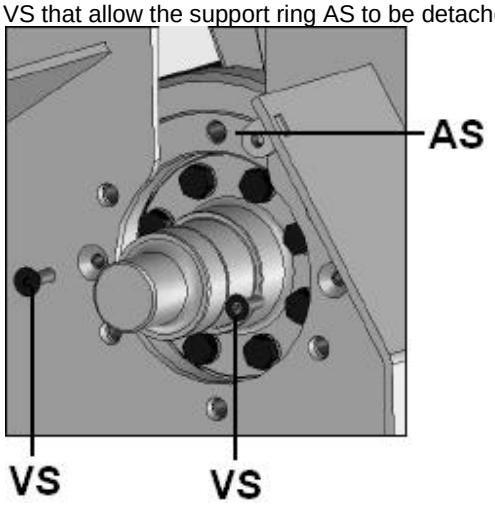




ATTENZIONE

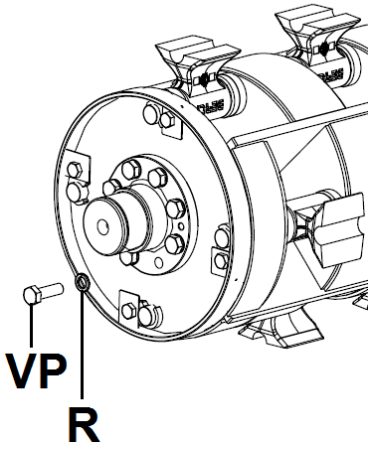
PERICOLO

10. Unscrew the flared screws VS that allow the support ring AS to be detached;

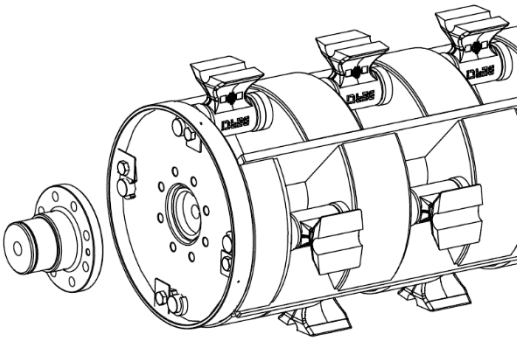


11. With the help of a hoist, remove the rotor from the casing and rest it on suitable supports. Carry out this operation under the safest possible conditions and take care to ensure that the two support rings do not fall on the ground;

12. Unscrew the pin fixing screws from the rotor VP and their respective washers R;



13. With suitable force, remove the rotor pins;

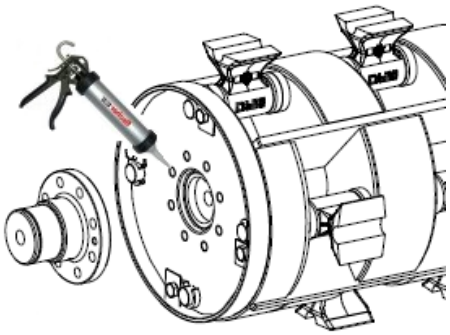


Clean the pin housings with a cloth. Use compressed air to remove any impurities from the screw housings that fix the pins to the rotor tubes.

ATTENZIONE

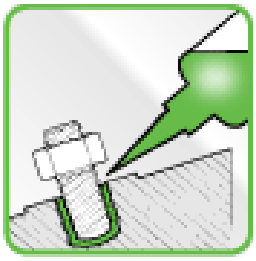
PERICOLO

14. Replace the pins. Before replacing them in their housings, spread on a layer of threadlocking glue;



Recommended threadlock	**LOXEAL 83.54**

15. Bolt the pins to the rotor with the appropriate nuts and bolts.
    Spread high temperature-resistant silicone on the bolt threads (red paste);



Recommended silicone	**Fischer SAT Art. 09271**

16. Using the hoist, reposition the rotor in its housing. Remember to insert the support rings on both sides of the rotor!
17. Fix the support rings to the casing with the flared screws;
18. Insert the supports just as they were removed;
19. Insert the side closing plates
20. Tighten the screws that fix the rotor support to the casing;
21. From the pulley side, fit the internal snap ring, the seal ring, the cover and the external snap ring;
22. From the opposite side: fit the internal snap ring, the cover and the external snap ring;
23. Fit both pulleys and couplings as well as the 4 belts;
24. Fit the automatic tensioner (paragraph 5.2.3.);
25. Fit the support slides (paragraph 5.2.7.);
26. Fit the transmission protection cover;
27. Once all operations are complete, attach the machine to the appropriate lifting points, turn it over, rest it on the ground and repeat the "Connection and Starting the Machine" procedure in paragraphs 3.4 and 4.

5.2.7. SUPPORT SLIDES REPLACEMENT

The machine has support slides that can be replaced at the end of their useful life as follows:

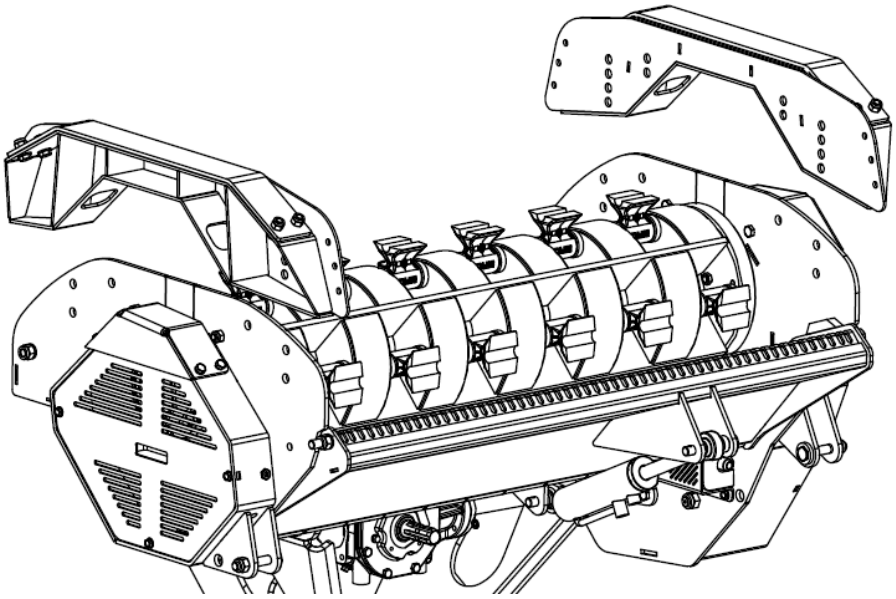
1. Turn the machine over and rest it on suitable supports;

At the workshop, use appropriate equipment to support and move the machine especially regarding the maximum weight that can be lifted and sustained (see table 1 paragraph 1.5.3) in compliance with the laws in force in the country of use.

ATTENZIONE

PERICOLO

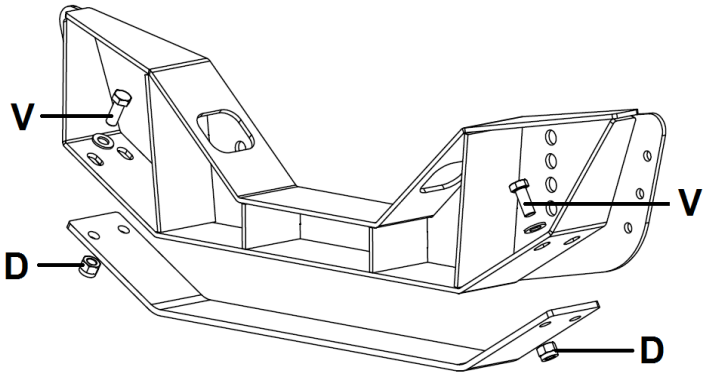
2. Remove the nuts and bolts (4 bolts on each side) that fix the slides to the sides;



3. Replace the support slides both on the right and left sides of the machine;

4. Replace the bolts and tighten the nuts;

On the support slides, on the anti-wear pads can be replaced.
In order to do this, with the machine upside-down, remove the nuts D and bolts V (4 bolts per slide), replace the pad and fix with the appropriate screws.



5. Once all operations have been completed, turn the machine upright again, position on the ground and repeat the "Connection and Machine Start Up" procedure in paragraphs 3.4 and 4.

5.2.8. REPLACING MACHINE PROTECTION

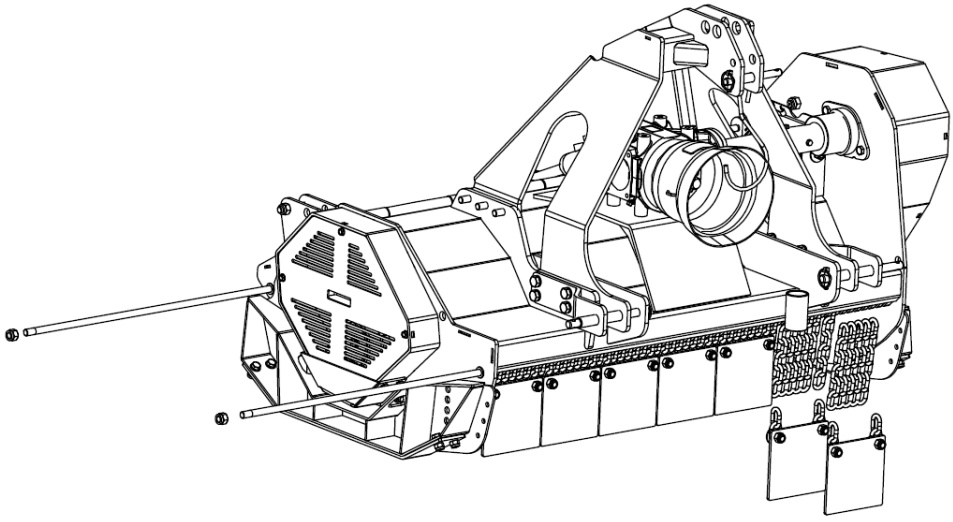
The machine has protection at the front and back made up of chains and straps.

The chains and straps must always be present and be in good condition. Working without chains or straps means working without protection, which is considered improper use. The manufacturer declines any responsibility for serious damages/accidents to persons, property and animals due to improper use of the machine.

At the workshop, use appropriate equipment to support and move the machine especially regarding the maximum weight that can be lifted and sustained (see table 1 paragraph 1.5.3) in compliance with the laws in force in the country of use.

ATTENZIONE

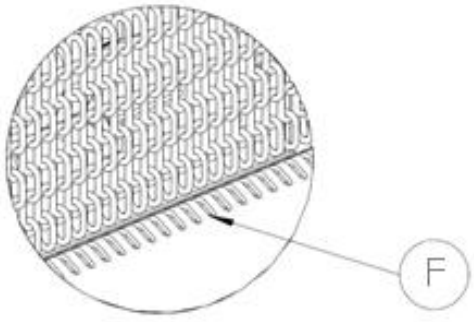
1. Remove the nuts and remove the protection pins bit by bit, collecting the chains and straps in a suitable container;

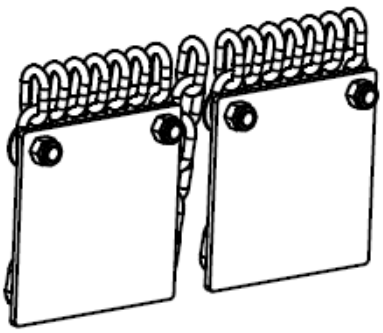


PERICOLO

2. Check for any damage; if any, proceed to immediate repair so as to restore the initial state;

3. Install the new chains and straps. During this operation, the protection pin should be inserted gradually in order to keep the chains in position in the slots F.
Respect the fitting order of the chains as illustrated below;





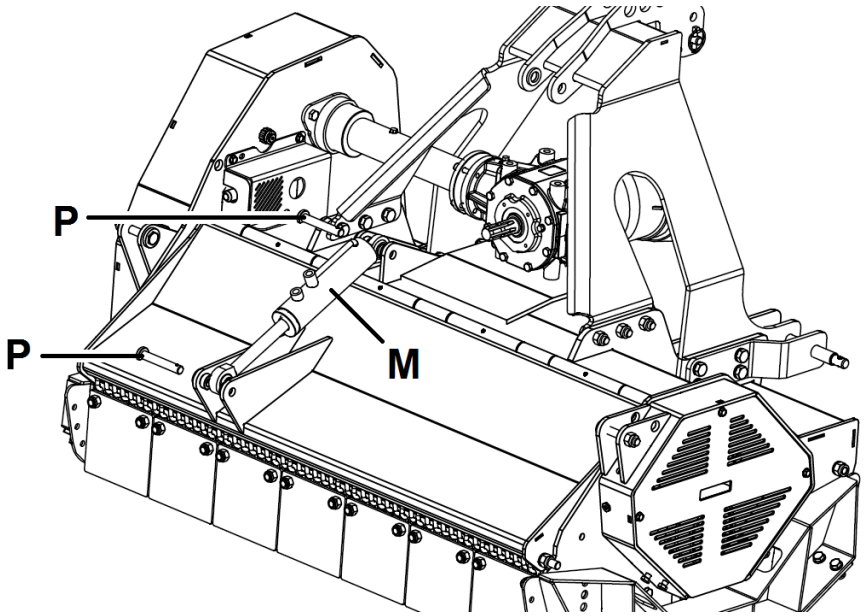
4. Tighten the pin fixing nuts;

5. Once all operations are complete, repeat the "Connection and Machine Start-up" procedure in paragraphs 3.4 and 4.

The original spare parts provided by our company ensure complete and correct use of the machine.

5.2.9. REPLACING THE REAR BONNET HYDRAULIC JACK

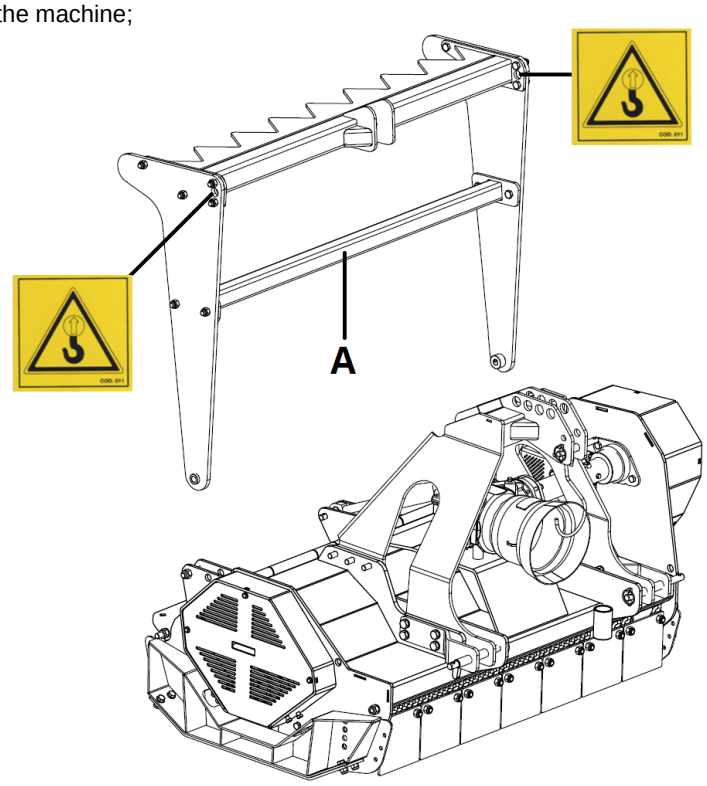
Replacing the hydraulic opening/closing jack on the rear bonnet should be carried out the machine on the ground, the operating machine off, the power socket disconnected, the parking brake engaged and the ignition key removed from the dashboard and kept safe.

	When disconnecting the hydraulic pipes that activate the jack, take extreme care should any hydraulic fluid come out of the pipes;
	1. Remove the elastic pins and washers;
	2. Remove the fixing pin P of the jack M;
ATTENZIONE PERICOLO	
	3. Replace the jack M;
	4. Insert the jack fixing pins P;
	5. Insert the washers and elastic pins;
	6. Connect the jack hydraulic activation pipes;
	Do not tighten excessively otherwise you will damage the threads of the fittings.
	7. Once all operations are complete, repeat the "Connection and Machine Start-up" procedure in paragraphs 3.4 and 4.
	When starting up, power the machine for a few minutes with the motor at minimum revs in order to ensure that the hydraulic tubes are filled fully.
	Any maintenance residues, such as, straps or replaced materials containing flammable residues must be kept away from sources of ignition and disposed of in accordance with applicable laws in the country of use.
	The gathered oil must be disposed of in compliance with the laws in force in the country of use.
☞	The original spare parts provided by our company ensure complete and correct use of the machine.

5.2.10. PROTECTION ARC

ATTENZIONE	Should the protection arc need to be replaced, only use original spare parts that guarantee a full and correct return to use of your machine.
	The machine must be placed on flat and stable ground, the operating machine must be off, the power socket disconnected, the parking brake engaged and the ignition key removed from the dashboard and kept safe by the user.

1. Attach the protection arc A with the appropriate chains, lift it clear of the ground and move it closer to the machine;

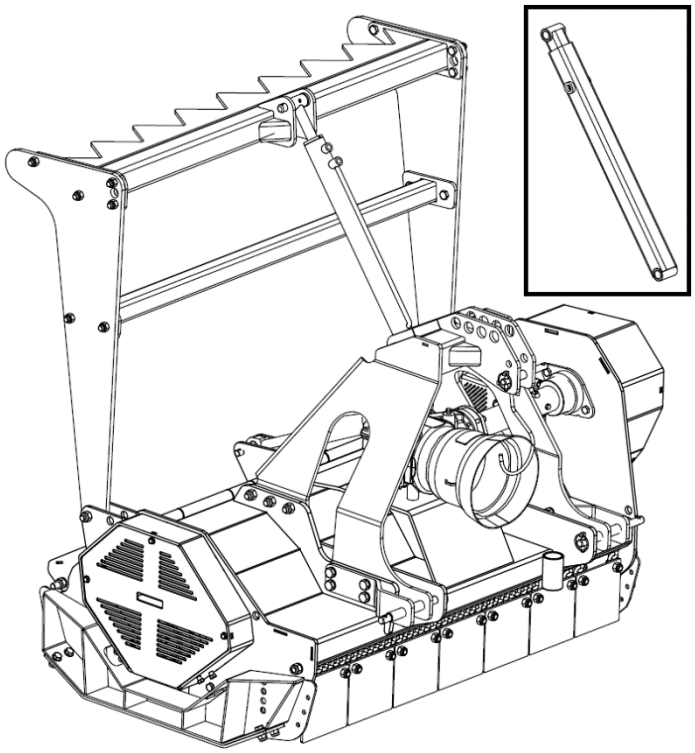


ATTENZIONE

At the workshop, use appropriate equipment to support and move the machine especially regarding the maximum weight that can be lifted and sustained (see table 1 paragraph 1.5.3) in compliance with the laws in force in the country of use.

PERICOLO

2. Fix the arc with nuts, bolts and the hydraulic jack or mechanical push rod;



3. Once all operations are complete, repeat the "Connection and Machine Start-up" procedure in paragraphs 3.4 and 4.

5.2.11. CLEANING THE MACHINE

Clean the machine regularly using water and paying particular attention to residues of flammable materials.
Make sure that the hot parts of the machine are free from straw, hay or flammable residues.

5.3. STORAGE - WINTERING

If the machine is immobilised for long periods, it must be stored in a place sheltered from atmospheric conditions and be protected to avoid damage.
Before every wintering, proceed as follows:

- Free the rotor and the tools from trimmer residues;
- Clean the machine thoroughly;
- Plug the hydraulic hoses (if quick couplings are not present), making sure to collect the hydraulic oil it contains;
- Carry out a general visual control of the machine to identify structural damage, to detect deep paint abrasions, to check that all original safety pictograms are in place, and that they are integral and legible
- Grease all mechanical parts and fastening pins;
- If possible, recover the machine in a covered place, on flat and consistent ground.
- Bind the hydraulic pipes with a cable tie and attach them to the machine.

Make sure that the storage temperature is between 0 °C and 50 °C.

In order to dispose of the oil and of all the other materials used for gathering, cleaning it, etc., follow the standards in force in the country of use.

5.4. FIRST USE OR RETURN TO USE AFTER LONG PERIODS OF INACTIVITY

Before using the machine for the first time, or after a long period of downtime, proceed as follows:

- Verify that the machine is not damaged;
- Check mechanical parts; they must be in good conditions and not rusty;
- Check the wear condition of the tools;
- Accurately grease all mobile parts;
- Ensure that there are no oil leakages coming from the fittings or form the tubes;
- Ensure that all the protections are complete and correctly positioned.

5.5. SCRAPPING

	In the event of scrapping, the machine must be disposed of in suitable waste disposal sites, in compliance with the laws in force in the country of use. Before scrapping, separate the parts in rubber or plastic as well as the electric and electronic equipment (if present). Recover any waste oils and dispose of them at relevant collection centres. The parts made only in plastic, aluminium, steel, can be re-cycled, if collected by appropriate centres.

5.6. TIGHTENING TORQUE TABLE

Ø screw	Hexagon	Class		8.8		10.9		12.9	
		Pitch		Pitch		Pitch		Pitch	
		Large	Fine	Large	Fine	Large	Fine	Large	Fine
	mm	mm	mm	Nm	Nm	Nm	Nm	Nm	Nm
M8	13.00	1.25	1.00	**20**	22	29	31	34	37
				25	27	35	38	42	46
M10	17.00	1.50	1.25	**40**	42	57	59	68	71
				50	53	70	74	84	89
M12	19.00	1.75	1.50	**69**	72	97	101	116	121
				85	89	119	125	143	150
M14	22.00	2.00	1.50	**110**	118	154	166	185	199
				135	148	190	208	228	250
M16	24.00	2.00	1.50	**128**	180	240	253	287	303
				212	226	298	318	357	382
M18	27.00	2.50	2.00	**235**	248	330	349	397	419
				290	310	402	436	490	523
M20	30.00	2.50	2.00	**332**	347	467	489	561	586
				413	436	580	614	697	736
M22	34.00	2.50	2.00	**454**	474	639	666	767	799
				568	597	798	840	958	1,008
M24	36.00	3.00	2.00	**574**	617	808	868	969	1,041
				714	781	1,004	1,098	1,204	1,317

5.7. SCHEDULED MAINTENANCE TABLE

Description	Checks
GENERAL MACHINE CHECKS	
Rotor greasing	Every 8 hours of work
Bonnet hinge greasing	Every 50 hours of work or when necessary
Tensioner automatic greasing	Every 8 working hours / Every 80 working hours
Jack arc greasing	Every 50 hours of work or when necessary
Arc greasing	Every 50 hours of work or when necessary
Tensioner hook greasing	Every 50 hours of work or when necessary
Cardan shaft greasing	See Use & Maintenance manual of the cardan shaft
Machine bolts fastening check	After the first 4 h and then every 50 h.
Belt tension check	After the first 4 h and then every 50 h.
Tools wear and fastening check	Before each work shift
Tools, screws and nuts replacement	Every 200 working hours or when damaged or when worn
Transmission belts replacement	Every 400 hours or when too worn out
Pulleys replacement	Every 400 hours or when too worn out
Rotor balancing	Every partial or total replacement of tools
Support slides replacement	Every 400 hours or when too worn out
Guards integrity check	Every machine start-up. Restore the guards if worn and/or damaged.
Pictograms check	Every machine start-up. Restore if worn and/or damaged.
HYDRAULIC SYSTEM	
Check tightening of hydraulic pipes	At each start-up and each fluid leakage
Check of the hydraulic tubes	Check at every start-up. In case of damage or seepage, replace immediately

5.8. TROUBLESHOOTING TABLE

PROBLEM	CAUSE	SOLUTION
Uneven or poor quality of mulching	• Worn or damaged tools • Improperly adjusted machine • Machine clogged • The rotor does not rotate as it should • Rotor roll support • Worn slides • Terrain with excessive ripples	• Replace the tools • Carry out adjustments • Decrease tractor advancement speed • Check belt tensioning • Replace the roll support • Replace the slides • Go over the area several times
Premature tool wear	• Terrain with stones or sandy • Tools cutting height too Low • The rotor rotates too quickly or too slowly	• Searching • Adjust cutting height • Check the machine adjustment
Machine noise	• Unbalanced rotor • Counter-weights loss • Damaged, worn or missing tools • Worn bearings	• Balancing in specialised workshop • Replace the tools • Replace bearings
Gearbox and extension overheating	• Mulcher oil level too low • Oil finished • Excessive amount of material to be processed; • Mulcher oil cooling system too small	• Add more oil in the mulcher • Replace oil • Go over the area several times or decrease the advancement speed • Give more power to the cooling system
Frequent breakage of the gearbox oil seal	• Pressurised machine reservoir • Worn out engine	• Periodically vent the tank and contact the mulcher dealer • Replace the gearbox
Frequent breakage of the bearings	• The machine frame is folded • The bearing were not lubricated • The rotor was stressed excessively • Unbalanced/folded rotor	• Replace the machine frame • Grease the bearings following the scheduled maintenance Table • Use the machine in compliance with the allowed working limits • Balancing performed at specialised workshop or rotor replacement
The rotor does not rotate	• Foreign body stuck • Breakage of the bearing • Breakage of the gearbox • Breakage of the transmission • Breakage of the belts • Breakage of the rotor shaft • Fault at the mulcher supply system	• Consult the "machine clogging" procedure • Seals and bearings replacement • Gearbox replacement • Transmission replacement • Belts replacement • Rotor replacement • Contact the mulcher mechanic
Worn/thorn seal rings	• Excessive lubrication • High rotor rotation speed • Incorrect seals assembly	• Change the seal rings • Check the machine adjustment • Ask the manufacturer for further information

Broken/detached frame	• Worn blade • Excessively stressed frame and crushed to the ground • Unbalanced rotor	• Change the frame; • Change the frame; • Balance the rotor
The rotor vibrates	• The rotor is unbalanced; • Tools worn/broken, • Folded rotor	• Balancing in specialised workshop • Replace the worn and/ or deteriorated and/or missing tools • Replace the rotor

6. GENERAL CONDITIONS

6.1. SPARE PARTS

Repairs and replacements must be performed using original spare parts, which must be requested from the Dealer. Remember that the request for spare parts must be correct and accompanied by the following indications:
• Machine type;
• Serial number;
• Spare part code that can be found in the Spare Parts Catalogue.
If it is a component that is part of a major unit (rotor, overgear unit, hydraulic engine, guards), you should also specify the model and serial number of the unit.

6.2. WARRANTY

Check on delivery that the machine was not damaged during transportation and that the accessories are complete.

GUARANTEE CONDITIONS

- The manufacturer guarantees its products for a period of 12 months from the delivery, stating that the form attached hereto is shipped from the manufacturer and completely filled within 15 days from the delivery date (refer to the delivery invoice document).
- In accordance with the terms mentioned above, the manufacturer is deemed to agree to provide warranty service all parts to be replaced according to his assessment, or in the opinion of its authorized representatives, with respect to defective parts in both the material and the construction. In any case, the transport and labour costs will be borne by the customer.
- The warranty does not include payment for damages due to improper use of the machine or for parts subject to wear and tear such as: hammers, blades, belts, etc.
- The manufacturer is not responsible for accidents to the operator or third parties arising from improper use of the machine.
- This warranty is void if:
  a) The maintenance and repairs have been performed by unauthorised individuals or companies;
  b) The machine has been previously repaired or modified with non-original spare parts;
  c) If there is confirmation of incorrect operation of the operator;
  d) The machine was not properly maintained/lubricated;
  e) The permitted power limit is exceeded;
  f) Whenever the instructions given in this manual are not followed;
  g) Any unauthorised modifications were performed.
- Any damage to and faults on the machine that have occurred during or after the period covered by the warranty do not involve any right to suspend payments for already delivered goods. No breakage or fault may be used as a motive to delay the payment.
- The manufacturer reserves the right to make any modifications considered necessary to improve its products at any moment and is not obliged to add these modifications to machines that have already been manufactured, delivered or are under construction.
- These general warranty conditions replace and cancel any other previous condition, expressed or implied.

CERTIFICATO DI GARANZIA
GUARANTEE CERTIFICATE
GARANTIESCHEIN
CERTIFICAT DE GARANTIE
CERTIFICADO DE GARANTÍA
GARANTIBEVIS
GARANTIECERTIFICAAT

Si conferma di aver ricevuto il libretto uso e manutenzione e di essere stati informati circa il trattamento dei dati personali in base al Decreto Lgs. 196/03.

We confirm to have received the instructions manual and that we have got to know all the information of the Legislative Decree 196/03 about the treatment of personal information.

Wir bestätigen, dass wir das Betriebs- und Wartungshandbuch erhalten haben und dass wir alle Informationen über die Verarbeitung unserer persönlicher Daten (Verordnung 196/03) gelesen haben.

Nous confirmons d'avoir reçu la notice d'emploi et d'entretien de l'appareil et d'être informés notamment le traitement de nos coordonnées selon le décret législatif 196/2003.

Se confirma la recepción del manual de uso y mantenimiento y haber sido informado acerca del tratamiento de los datos personales en base al Decreto legislativo 196/03.

Undertecknad bekräftar mottagandet av användar- och underhållsmanualen och har informerats angående hantering av personuppgifter enligt lagdekret 196/03.

Ik bevestig de handleiding voor gebruik en onderhoud te hebben ontvangen en dat ik geïnformeerd werd betreffende de behandeling van mijn persoonlijke gegevens, krachtens het Wetsdecreet 196/03.

Firma dell'acquirente / Purchaser's signature / Unterschrift des Kaufers / Signature de l'acheteur / Firma del comprador / Köparens underskrift / Handtekening van de koper

Data /Date/Datum/Fecha

Nome / Name / Nom / Nombre / Namn / Naam .....

Indirizzo / Address / Anschrift / Adresse / Dirección / Adress / Adres .....

FAC-SIMILE

6.3. NOTES

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