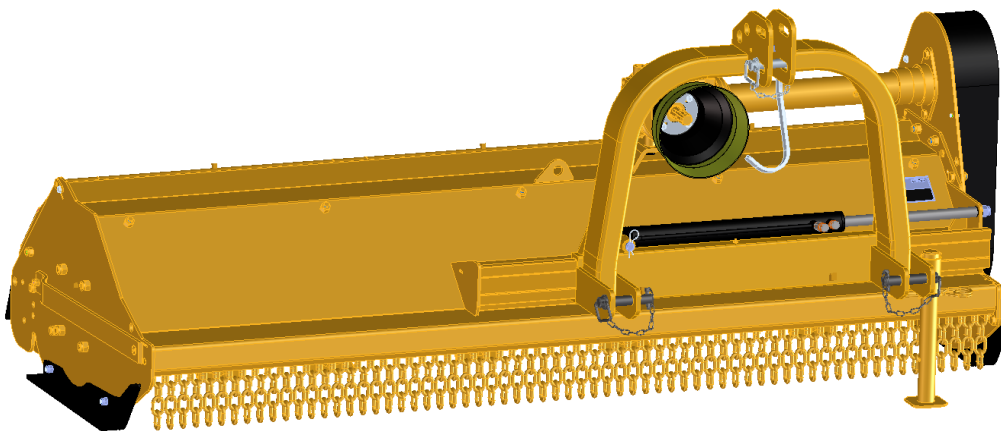
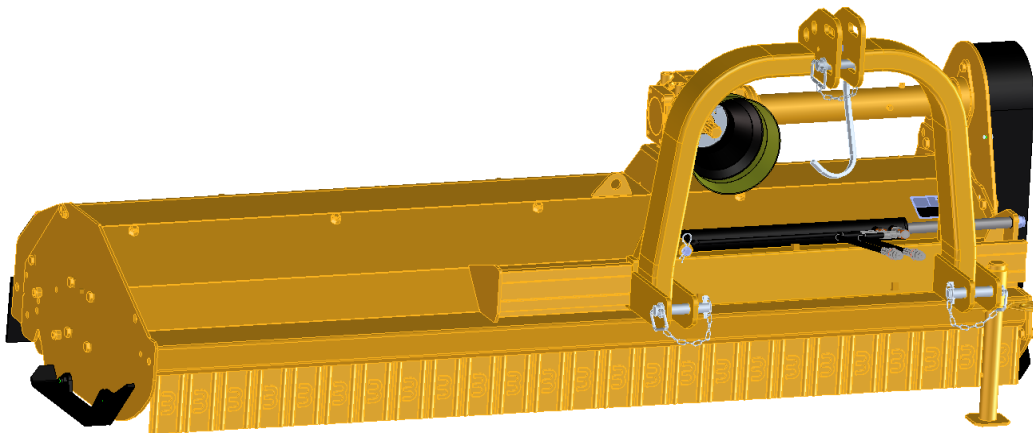


INSTRUCTION MANUAL

MULCHER

Trademark:
Models:

BERTI Macchine Agricole
TBM – TBM/S



📖 Before using the machine, carefully read this Manual 📖

ORIGINAL VERSION

INDEX

1. INFORMATIONS REGARDING THE INSTRUCTION MANUAL	6
1.1. MANUAL UPDATE.....	6
1.2. COPYRIGHTS.....	6
1.3. MACHINE IDENTIFICATION PLATE AND CE MARKING	6
1.4. CE CERTIFICATE OF CONFORMITY OF THE MACHINE	8
1.5. MACHINE INFORMATION.....	9
1.5.1. SPECIFIED USE	9
1.5.2. DESCRIPTION.....	9
1.5.3. TECHNICAL DATA.....	12
1.6. MATERIALS THROW	13
1.7. NOISE AND VIBRATIONS LEVEL.....	13
2. ACCIDENT PREVENTION AND SAFETY STANDARDS:	14
2.1. GENERAL SAFETY STANDARDS	14
2.2. FIRE-FIGHTING MEASURES.....	18
2.3. SAFETY SIGNS	19
2.3.1. DESCRIPTION OF THE PICTOGRAMS PLACED ON THE MACHINE	19
2.3.2. POSITION OF PICTOGRAMS ON THE MACHINE.....	22
3. USE.....	24
3.1. INTRODUCTION.....	24
3.2. HANDLING AND TRANSPORTATION	24
3.2.1. TRANSPORTATION IN PUBLIC AREAS	27
3.2.2. MACHINE TRANSPORT PROCEDURE	27
3.3. VISIBILITY	29
3.4. CONNECTION OF THE MACHINE TO THE TRACTOR	29
3.4.1. CONNECTION PROCEDURE.....	30
3.5. STARTING THE MACHINE	34
3.5.1. MACHINE ADJUSTMENTS.....	36
3.5.1.1. RECOMMENDED SPEEDS.....	36
3.5.1.2. CUTTING HEIGHT ADJUSTMENT.....	36
3.6. MACHINE IN WORK STAGE	38
3.7. MACHINE STOPPAGE.....	41
3.8. MACHINE DISCONNECTION	42
3.9. CLOGGING.....	43
4. MAINTENANCE.....	44
4.1. MACHINE HOT POINTS	45
4.2. MAINTENANCE INTERVENTIONS.....	45
4.2.1. GREASING.....	45
4.2.2. ADJUSTMENT OF TRANSMISSION BELT TENSION	49
4.2.3. REPLACING THE TRANSMISSION BELTS.....	51
4.2.4. HYDRAULIC PLANT	52
4.2.5. TOOLS WEAR CHECK	53
4.2.5.1. TOOLS REPLACEMENT PROCEDURE	55
4.2.6. SUPPORT SLIDES REPLACEMENT	57
4.2.7. REPLACEMENT OF THE FRONT GUARDS OF THE MACHINE	57
4.2.8. REPLACEMENT OF THE REAR TYRE.....	60
4.2.9. CLEANING THE MACHINE	61
4.3. STORAGE - WINTERING	61
4.4. SCRAPPING.....	61
4.5. SCHEDULED MAINTENANCE TABLE	62
4.6. TROUBLESHOOTING TABLE	63

5.	GENERAL CONDITIONS	65
5.1.	SPARE PARTS	65
5.2.	WARRANTY	65
5.3.	NOTES	66

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.

This manual is divided into identifiable chapters, for easy reference.

The indications contained in this manual are intended for a professional user, who must have specific knowledge regarding use of the machine and must be authorised, instructed and appropriately trained,

The use of original spare parts and accessories is recommended. The use of unoriginal parts triggers invalidity of the warranty and may cause dangers, reducing the lifetime and performance of the machine as well as serious damages/injury to persons, property and animals.

In the event of transfer or re-sale, this instruction manual must always accompany the machine. If it is damaged or lost, a copy must be requested from the Manufacturer of the machine or previous owner. The manual is considered an integral part of the machine.



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 does 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 be on hand for immediate consultation, if necessary.



For the DISTRIBUTOR, RESELLER and IMPORTER: the person responsible to deliver the machine to the end user must ensure application 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.

GLOSSARY

Machine	Mulcher.
Tractor	Motorised vehicle used to tow other vehicles, especially agricultural machines.
User	The user is considered as the owner and/or staff, the operator/user in charge of operating, cleaning, maintaining and repairing the machine, able to recognise and therefore avoid the dangers arising from the use of the machine.
Specialised staff	Those persons especially trained and enabled to perform maintenance interventions or repairs that require particular knowledge of the machine, its operation, safety devices and methods of intervention.
Safety staff	Personnel in charge of making sure that no persons are inside the machine operating area.
Manufacturer	Company that produces the → Berti Macchine Agricole S.p.A. hydraulic hedge mower

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 may be of category cat. 1, Cat. 2, Cat. 3 or Cat. 4 (if a mulcher Cat. 3 must be connected simply adjust the registers of the parallels of the tractor on Cat. 3, so that the tractor will be perfectly aligned with the measurements of the mulcher).
machine operating area	The operating area, fixed at 50 m , delimits the machine operating area and should be considered "dangerous zone" . Persons, property and animals must remain outside the machine operating area.
 PERICOLO	DANGER - This signal indicates and imminent and real dangerous situation, that may cause serious injuries or death if not avoided.
 ATTENZIONE	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.
 CAUTELA	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.
	NOTA BENE

1. INFORMATIONS REGARDING THE INSTRUCTION MANUAL

This manual is an integral part of the machine and must accompany the same in the event 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 all three of its versions, informs the user to pay utmost attention to the subject in case.

Some of the devices described in this manual may not be present on your machine, depending on the chosen set up and 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 to make modifications to the machine at any time for technical or marketing reasons. These modifications do not oblige the Manufacturer to intervene on machines marketed up to that time and do not invalidate this documentation.

Any subsequent supplements to the manual that the Manufacturer considers appropriate to supply, must be kept together with the manual and considered as an integral part of the same.

1.2. COPYRIGHTS

The copyright for this manual belongs 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 and type;
- Serial number and year of manufacture;
- Weight

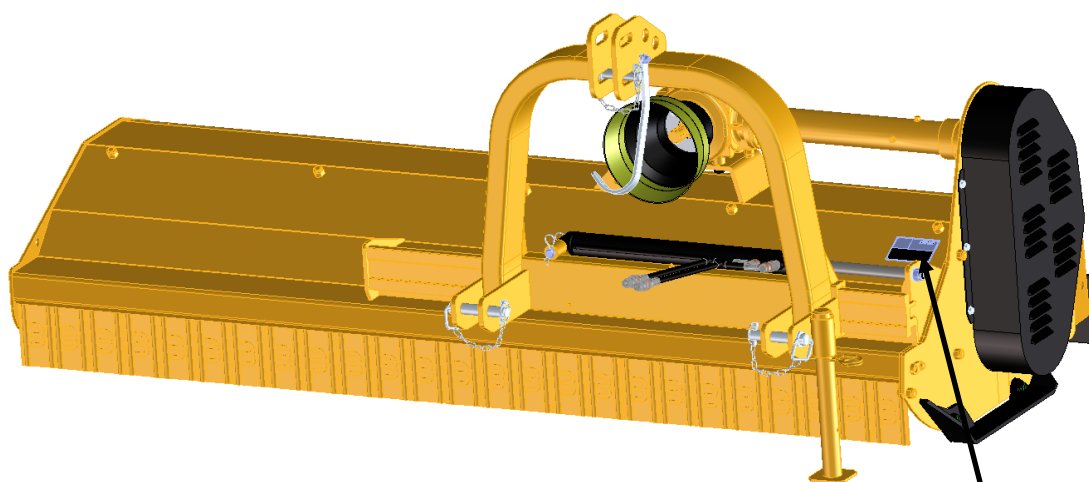
The machine is supplied as per standard with:

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



Figure 1

TBM



TBM/S

Location plate

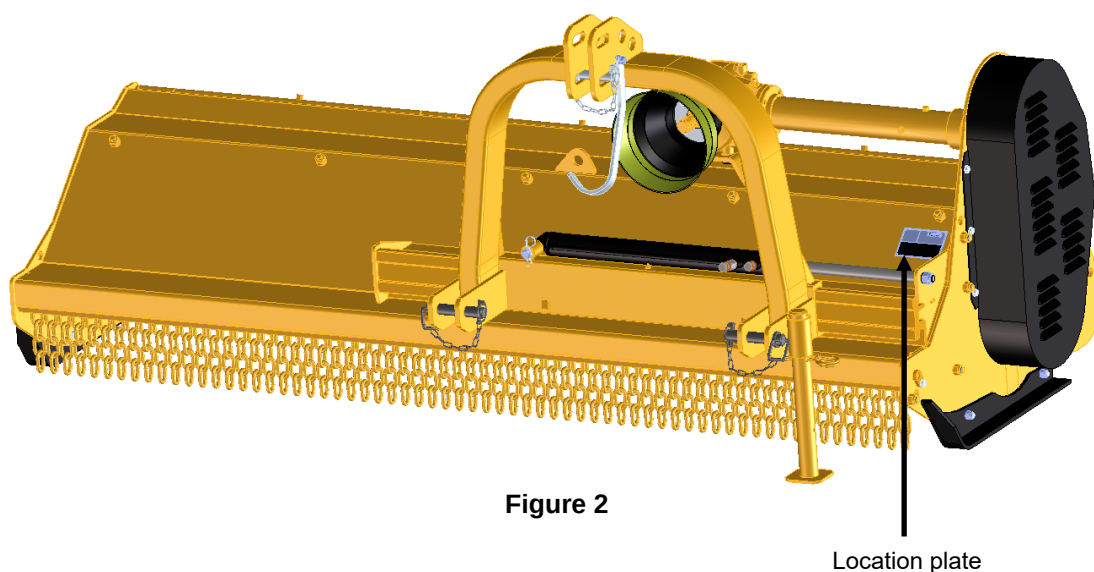


Figure 2

Location plate

1.4. CE CERTIFICATE OF CONFORMITY OF THE MACHINE

 BERTI BERTI MACCHINE AGRICOLE S.p.A. Via Musi 1/a - 3 - 37042 CALDIERO (Verona) - ITALY Tel. +39.045.6139711 - Fax +39.045.6150251 info@bertima.it - www.bertima.it	 
Dichiarazione CE di Conformità ai sensi della direttiva 2006/42/CE EC Certificate of Conformity - conforming Directive 2006/42/CE EG Konformitätserklärung entsprechend der EU-Richtlinie 2006/42/CE Déclaration CE de conformité à la directive de la 2006/42/CE	
La Ditta / We / Wir / Nous BERTI Macchine Agricole S.p.A. 37042 CALDIERO - VERONA - ITALY	
dichiara sotto la propria responsabilità nella sua qualità di costruttore, che la macchina a cui si applica questa dichiarazione, è conforme ai requisiti essenziali di sicurezza e di tutela della salute di cui alla <u>Direttiva 2006/42/CE</u>. Per la verifica delle macchine sono state consultate le seguenti norme armonizzate: declare in sole responsibility, in quality of Manufacturer, that the product to which this certificate applies, conforms to the basic safety and health requirements of <u>Directive 2006/42/CE</u>, and according to the European harmonized standards: erklären in alleiniger Verantwortung, als Hersteller, dass das Produkt auf das sich diese Erklärung bezieht, mit den grundlegenden Sicherheits- und Gesundheitsschutzanforderungen der <u>EU-Richtlinie 2006/42/CE</u> und mit den Anforderungen der gemeinsamen EU-Richtlinien konform ist: déclarons sous notre seule responsabilité, comme Fabricant, que le produit faisant l'objet de la déclaration est conforme aux prescriptions fondamentales en matière de sécurité et de santé stipulées dans la <u>Directive de la 2006/42/CE</u>. Nos déclarations que les normes harmonisées suivantes ont été appliquées: <u>UNI EN 13724:2003+A1:2009</u> <u>UNI EN ISO 13857:2009</u> <u>UNI EN ISO 3767-2:1998</u> <u>UNI EN ISO 12100:2010</u> Nonché le seguenti specifiche tecniche: And the following technical specifications: Und die folgende technische Ausstattungen: Et les spécifications techniques suivantes: <u>ISO 11684:1995</u>	
MODELLO -- TYPE TA 180 MATRICOLA -- N° DE SERIE XXXXXXXXXX	
Legale rappresentante e custode del fascicolo tecnico Legal representative and custodian of the technical pamphlet Gesetzlicher Vertreter und Hüter des technischen Heft Représentant juridique et dépositaire du dossier technique BERTI Macchine Agricole S.p.A. BERTI MARIO Amministratore Unico P.DCE_M01r00	
La presente certificazione è parte integrante della macchina This EC certificate is an integral part of the unit Die hier beigelegte Erklärung ist wesentlicher Bestandteil der Maschine Cette déclaration de conformité est partie intégrative de l'appareil	
Cod. Fisc. e Reg.Impr. di VR n° 00068150234 - P.IVA : 00068150234 - R.E.A. VR 84849 - Cap. Soc. € 151.704,00 iv Società soggetta a direzione e coordinamento da parte della società HB Holding Berti S.r.l. R.L. di VR03066950241	

1.5. MACHINE INFORMATION

1.5.1. SPECIFIED USE

The universal mulcher model TBM has been designed to be used exclusively in the agricultural sector, for mulching grass, bushes, branches, corn stalks and brushwood, up to a diameter of approximately 6 cm. according to the type of tool used.

The universal mulcher model TBM/S has been designed to be used exclusively in the agricultural sector, for mulching grass, bushes, branches, corn stalks and brushwood, up to a diameter of approximately 8 cm. according to the type of tool used.

Both machines are ideal for the applications on green maintenance, set-aside, parks, green areas and vineyards.

The machines are towed by the tractor via the three-point hitch and acts on the ground in virtue of its own weight and the rotation of the rotor, activated by the tractor power points via cardan connection.

The machines are not suitable to be used in other sectors than in agriculture.

DO NOT USE THE MACHINE FOR PURPOSES DIFFERENTLY FROM THOSE PROVIDED!

The use of the mulcher is strictly forbidden if connected to a tractor with different features from those listed in paragraph 1.5.3, on soils with stones, scrap metal, wire and any other synthetic materials, to fell trees, to mill logs, on unstable land (such as land with heavy uphill or downhill, steep slopes, near cliffs, on very uneven land etc....) and in any other situations that may cause dangerous conditions and serious consequences for the user, things, persons and animals



Any use of the machine different to that indicated in the instruction manual is considered unauthorised and dangerous.

1.5.2. DESCRIPTION

The machine has a working tool that is made up from a horizontal axle rotor, which mounts the mulching tools that turn at high speed.

The mulcher is made of:

- A frame;
- A three-points moveable connection system;
- A tiller of category 2;
- A mechanical and hydraulic movement system;
- A drive shaft coupling;
- A gearbox
- A distributor unit (pulleys, locking sets, automatic belt tensioner);
- A rotor;
- A series of mulching tools;
- A supporting device in stand-by position;
- CE accident prevention guards.

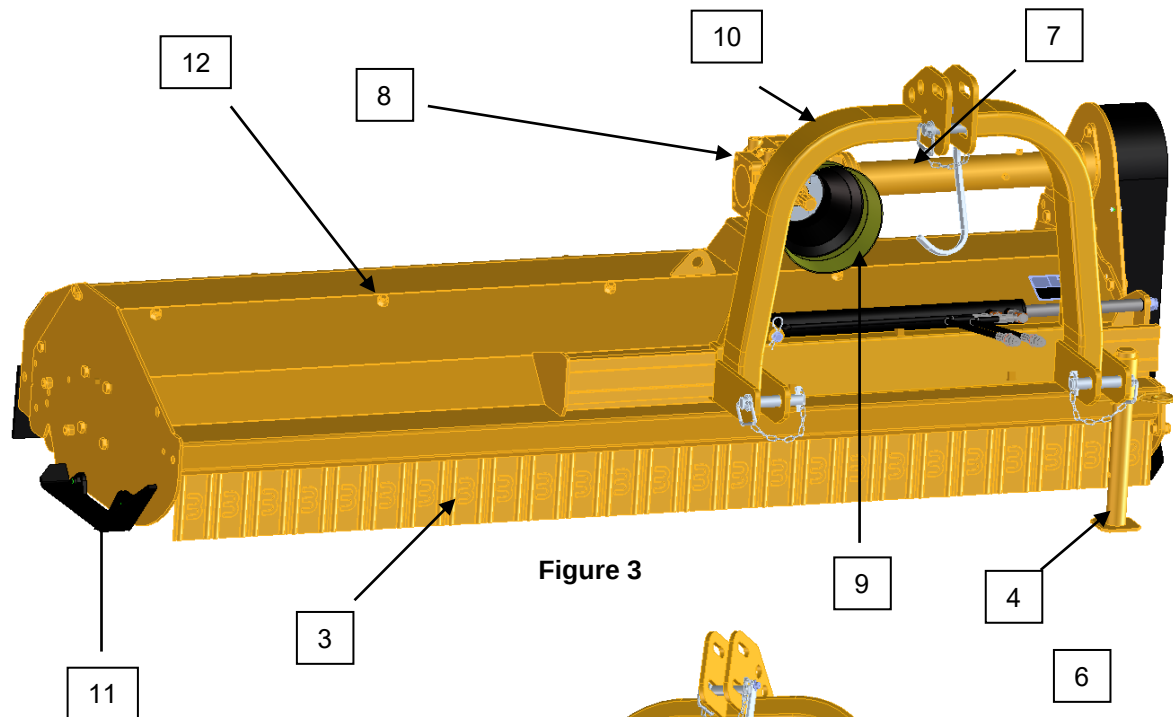


Figure 3

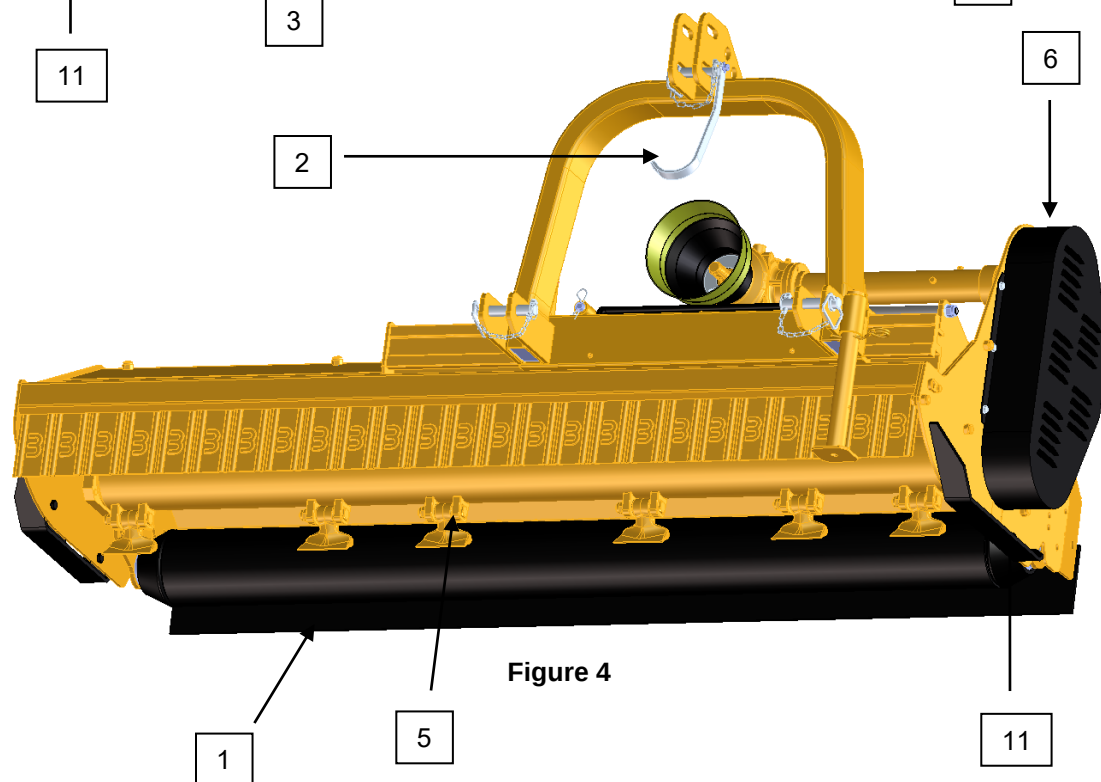


Figure 4

- 1 Levelling roll
- 2 Support cardan shaft in stand-by
- 3 Front guards with chains or straps
- 4 Support foot
- 5 Rotor
- 6 Casing

- 7 Extension
- 8 Gearbox
- 9 Counter-cap
- 10 Tiller
- 11 Support slides
- 12 Bolted counter-comb

Mulcher Mod. **TBM**

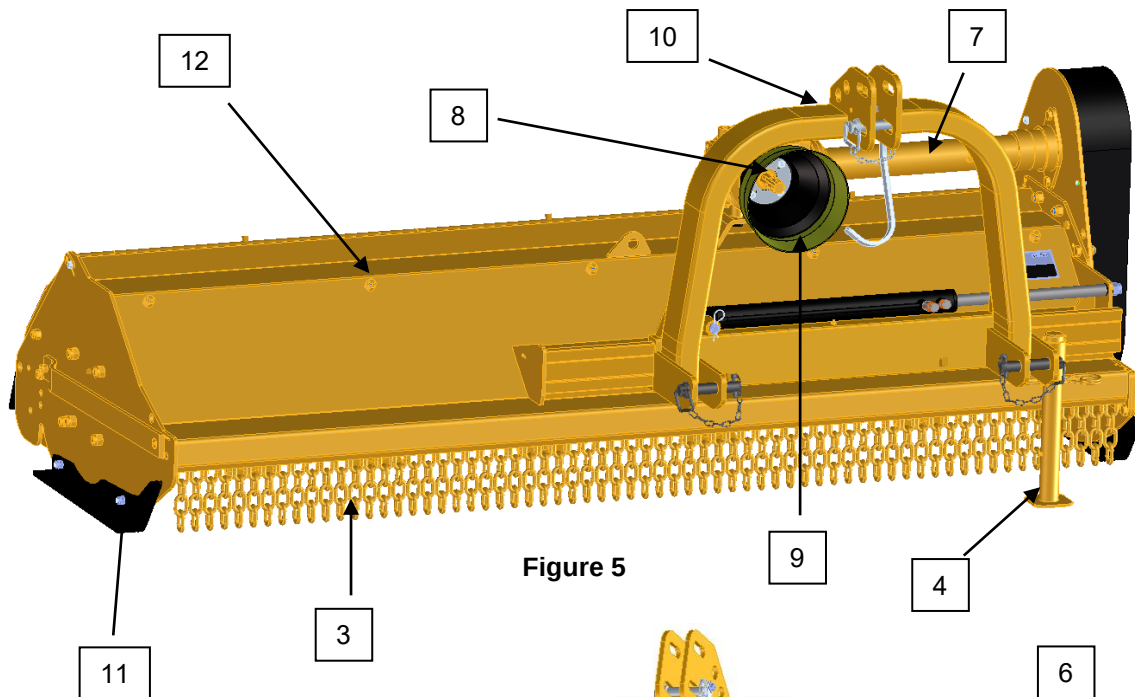


Figure 5

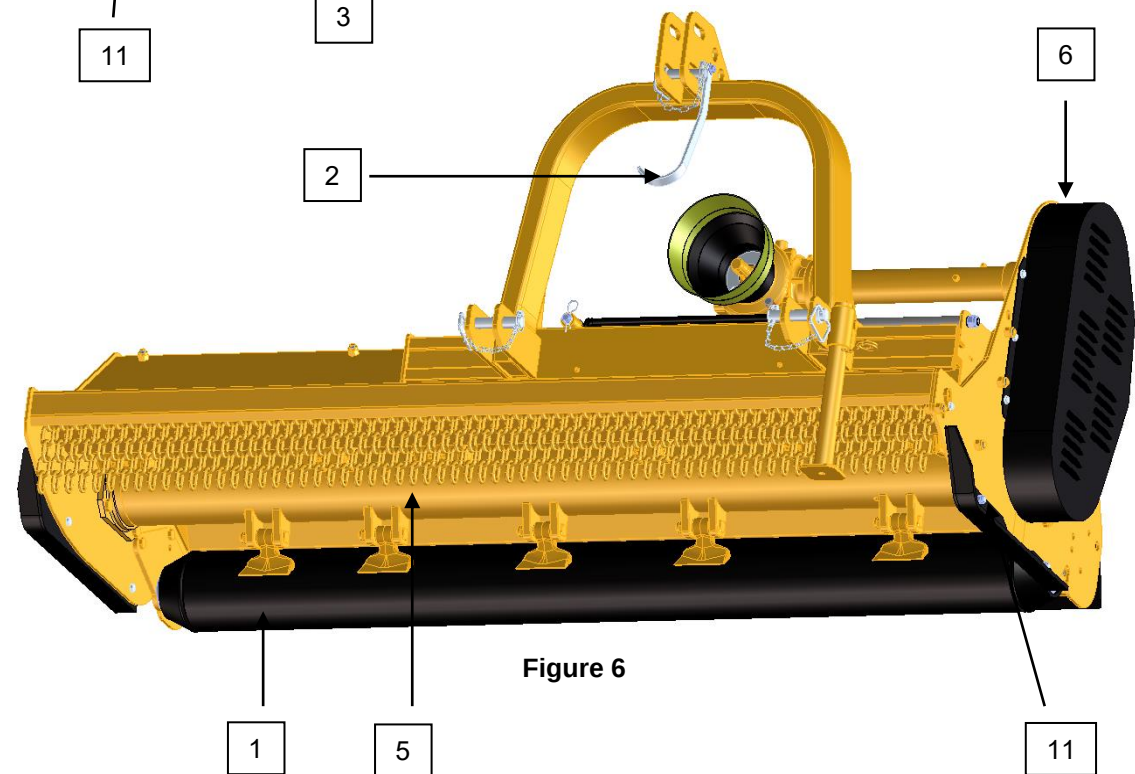


Figure 6

- 1 Levelling roll
- 2 Support cardan shaft in stand-by
- 3 Front guards with chains or straps
- 4 Support foot
- 5 Rotor
- 6 Casing

- 7 Extension
- 8 Gearbox
- 9 Counter-cap
- 10 Tiller
- 11 Support slides
- 12 Bolted counter-comb

Mulcher Mod. **TBM/S**

1.5.3. TECHNICAL DATA

The machine model TBM operates behind the tractor and can be applied on tractors with power between 36 and 80 kW (50 - 110 HP).
The machine model TBM/S operates behind the tractor and can be applied on tractors with power between 58 and 110 kW (80 - 150 HP).

The drawing and the tables below, indicate the machine operation field:

Mod.			HP										
	cm	Min	Max	mm	n°	n°	n°	PTO	A	B	C	min	max
TBM 180	180	50	110	875 925 355 1445	16	48	4	540 (1000)	90	198	100	735	815
TBM 200	200	50	110	1040 960 520 1480	18	54	4	540 (1000)	90	218	100	780	870
TBM 220	220	60	110	1040 1160 520 1680	20	60	4	540 (1000)	90	238	100	820	920
TBM 250	250	60	110	1040 1460 520 1980	22	66	4	540 (1000)	90	268	100	905	1025
TBM 270	270	60	110	1040 1660 520 2180	24	72	4	540 (1000)	90	288	100	935	1070

Attacco centrale
Centre mounted linkage
Mittiger Anbau
Attelage axial.

Mod.	
	mm
TBM 250	1355 1145 833 1667
TBM 270	1587 1113 1065 1635

Mod.			HP										
	cm	Min	Max	mm	n°	n°	n°	PTO	A	B	C	min	max
TBM/S 180	180	75	150	875 925 355 1445	16	48	5	1000 (540)	100	198	105	845	955
TBM/S 200	200	75	150	1040 960 520 1480	18	54	5	1000 (540)	100	218	105	890	1020
TBM/S 220	220	75	150	1040 1160 520 1680	20	60	5	1000 (540)	100	238	105	935	1080
TBM/S 250	250	75	150	1040 1460 520 1980	22	66	5	1000 (540)	100	268	105	1000	1160
TBM/S 270	270	85	150	1040 1660 520 2180	24	72	5	1000 (540)	100	288	105	1055	1220
TBM/S 285	285	85	150	1040 1810 520 2330	26	78	5	1000 (540)	100	300	105	1100	1270
TBM/S 300	300	85	150	1040 1960 520 2480	28	84	5	1000 (540)	100	318	105	1135	1310

Attacco centrale
Centre mounted linkage
Mittiger Anbau
Attelage axial.

Mod.	
	mm
TBM/S 270	1616 1084 1094 1756
TBM/S 285	1616 1234 1094 1756
TBM/S 300	1616 1384 1094 1906

1.6. MATERIALS THROW



During some of the operations performed with the machine, you may check the materials throw; in particular, you should pay utmost attention to:

- Make sure that the protections of the operating components and the rear inspection hood are properly placed and effective;
- Periodically maintain and clean the machine;
- Make sure that there are no persons, animals or property in the machine operating area as they may become hurt/damaged.



The use of the machine is strictly forbidden if the tractor to which is connected is not provided with 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 AND VIBRATIONS LEVEL



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.

In compliance with the standards in force, after installing the machine and before starting it, the user must perform the noise emission measurements on the assembly made of tractor-mulcher.

In time there may be an increase in the level of noise from the tractor - mulcher assembly due to phenomena of wear: it is advisable to regularly carry out assessment of risk from 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 to the tractor-mulcher assembly are included in the vibrations produced by the tractor alone. 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 with suitable environmental conditions (e.g. with perfect visibility, terrain able to sustain the weight of the tractor-mulcher assembly, with slopes that allow proper vertical and lateral stability of the tractor-mulcher assembly etc.).

2. ACCIDENT PREVENTION AND SAFETY STANDARDS:

2.1. GENERAL SAFETY STANDARDS

A proper use of the machine and compliance with the standards indicated in this manual along with thorough appliance of all precautions to avoid any dangerous situations, will help to avoid accidents or damage, extending the machine lifetime and will minimise faults.

The Company "BERTI Macchine Agricole S.p.A." declines any responsibility, objective or subjective, if the indications contained in this instruction manual are not respected.

	The machine must not be used in sectors other than agricultural and a use different from that specified is considered improper.
	The machine must only be used by one operator driving the tractor.
	The user must check the proper connection between tractor and mulcher. The weight that can be lifted by the tractor in the most unfavourable conditions must be greater than the weight of the mulcher.
	Before getting out of the tractor and before performing any maintenance operations on the mulcher, use the parking brake, turn off the engine, remove the ignition keys from the dashboard, and wait for 5 minutes inside the cabin to ensure that the rotor and relative tools completely stop.
	It is forbidden to abandon and/or leave the tractor-mulcher assembly while the mulcher is still running.
	The use of the machine is strictly forbidden if the tractor to which is connected is not provided with 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.
	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.

 PERICOLO	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. Projected objects hazard!
 PERICOLO	The machine must only be used by authorised, educated and appropriately trained staff. 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.
 PERICOLO	Never use the machine without knowing its features.
 PERICOLO	The manual must always be on hand such that it can be consulted when necessary. If it is lost or damaged, request a replacement copy from the manufacturer.
 PERICOLO	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. It is recommended to periodically check the cab ventilation system filter and to always use suitable protection systems for the respiratory tract, such as dust masks.
 PERICOLO	The operator assigned to the machine must not wear clothing that can cause entanglement.
 PERICOLO	It is strictly forbidden to use the machine for lifting persons, animals or objects.

 PERICOLO	It is strictly forbidden to use the machine for transporting persons, animals or objects.
 PERICOLO	It is strictly forbidden to use the flexible tubes as supports; these components are mobile and do not offer proper support.
 PERICOLO	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 to persons or animals within or transiting through the machine working range.
 PERICOLO	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.
 PERICOLO	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. Always pay great attention when changing direction.
 PERICOLO	Use the machine during the day and under conditions of perfect visibility.
 PERICOLO	It is strictly forbidden to operate in adverse environmental conditions, for example during storms, snows, in windy, rainy or cloudy days, etc.
 PERICOLO	Avoid working on muddy, sandy or soft terrain.

 PERICOLO	Pay attention to the risk of accidental ignition of the electric arc machine with overhead power lines.
 PERICOLO	Do not use the machine if you are tired, ill or under the effect of alcohol, medicines or drugs.
 PERICOLO	Carefully check the machine each time before starting it.
 PERICOLO	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.
 PERICOLO	It is strictly forbidden to remove or tamper with the guards and/or safety devices.
 PERICOLO	Make sure that the safety pictograms are in good condition, legible and clean. If the pictograms have deteriorated, they must be replaced with other originals obtained from the manufacturer and placed in the position indicated in the instruction manual (paragraph 2.3.2). If dirty, clean them with a damp cloth.
 ATTENZIONE	The signs applied to the machine provide a series of important instructions: comply with them for your own safety.
 PERICOLO	It is strictly forbidden to perform any modification that may alter the original condition of the machine.
 PERICOLO	Any arbitrary modification made to this machine relieves the manufacturer from any liability for damage or injury, which can happen to the operators, third parties and objects.

 PERICOLO	Keep the machine free from foreign materials (debris, tools, other items), which may damage the operation or the operator.
	In the following paragraphs are listed 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 in the tractor an extinguisher of proper capacity and maintain periodically. 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.
 ATTENZIONE	The personnel that use the machine must know the main intervention techniques in case of fire.
 ATTENZIONE	Do not use the machine in areas that present explosion and/or fire hazard.
 ATTENZIONE	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.
 ATTENZIONE	Use appropriate extinguishing means: e.g. carbon dioxide, foam, chemical powder.
 ATTENZIONE	Do not weld in the proximity of tanks, pipes, cans, electrical cables or flammable materials in general.
 ATTENZIONE	When welding protect flammable parts with appropriate guards.

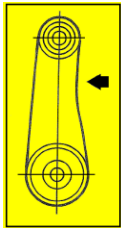
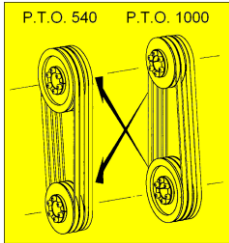
2.3. SAFETY SIGNS

Make sure the safety pictograms are in good conditions. If the pictograms have deteriorated, replace them with originals obtained from the manufacturer and place them in the position indicated in the operating 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

	ATTENTION: the machine must be used, adjusted and maintained in properly equipped workshops only after reading the maintenance and use manual. For further information, refer to chapter 3 - 4 of this instruction manual.
	WARNING - DANGER this machine must only be used by one operator.
	WARNING: it is strictly forbidden to get into or be transported by the machine.
	WARNING - DANGER of falling of suspended parts. Apply mechanical locking systems.
	WARNING - DANGER hands shearing risk.
	WARNING - DANGER of coming into contact with rotating elements. Keep at a safe distance.
	WARNING - DANGER of thrown objects. Keep at a safe distance.

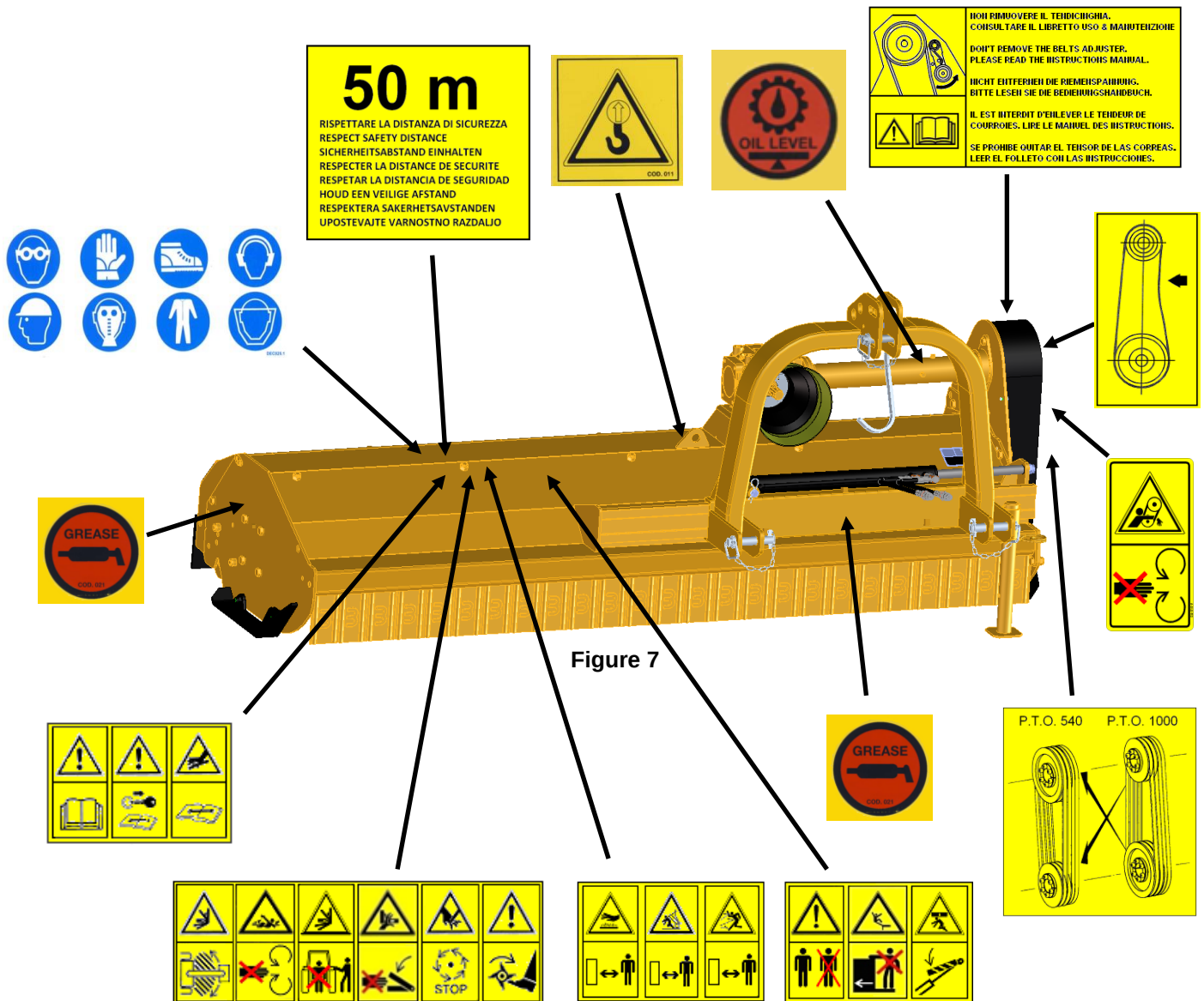
	ATTENTION: the foldable parts of the machine may fall.
	WARNING - DANGER of crushing. Do not stand between the tractor and the mulcher.
	WARNING - DANGER of coming into contact with moving elements. Do not place your hands and feet near the transmission belts.
	WARNING - DANGER of entanglement and pulling. Do not place hands and feet close to moving parts.
	WARNING - DANGER of burns. Keep at a safe distance.
	WARNING - DANGER of coming into contact with moving elements. Wait for the moving parts to stop.
	WARNING - DANGER of crushing, dangerous area due to machine displacement.
	PERSONAL PROTECTIVE EQUIPMENT.

	GREASING POINTS.
	OIL LEVEL.
	WARNING-DANGER minimum safety distance 50 m.
	LIFTING POINT.
	TENSIONED BELTS.
	CARDAN SHAFT ROTATING AT 540 rpm.
	WARNING: after pulleys inversion the P.T.O. passes from 540 rpm to 1000 rpm and vice-versa.
	DO NOT REMOVE THE BELTS TENSIONER.

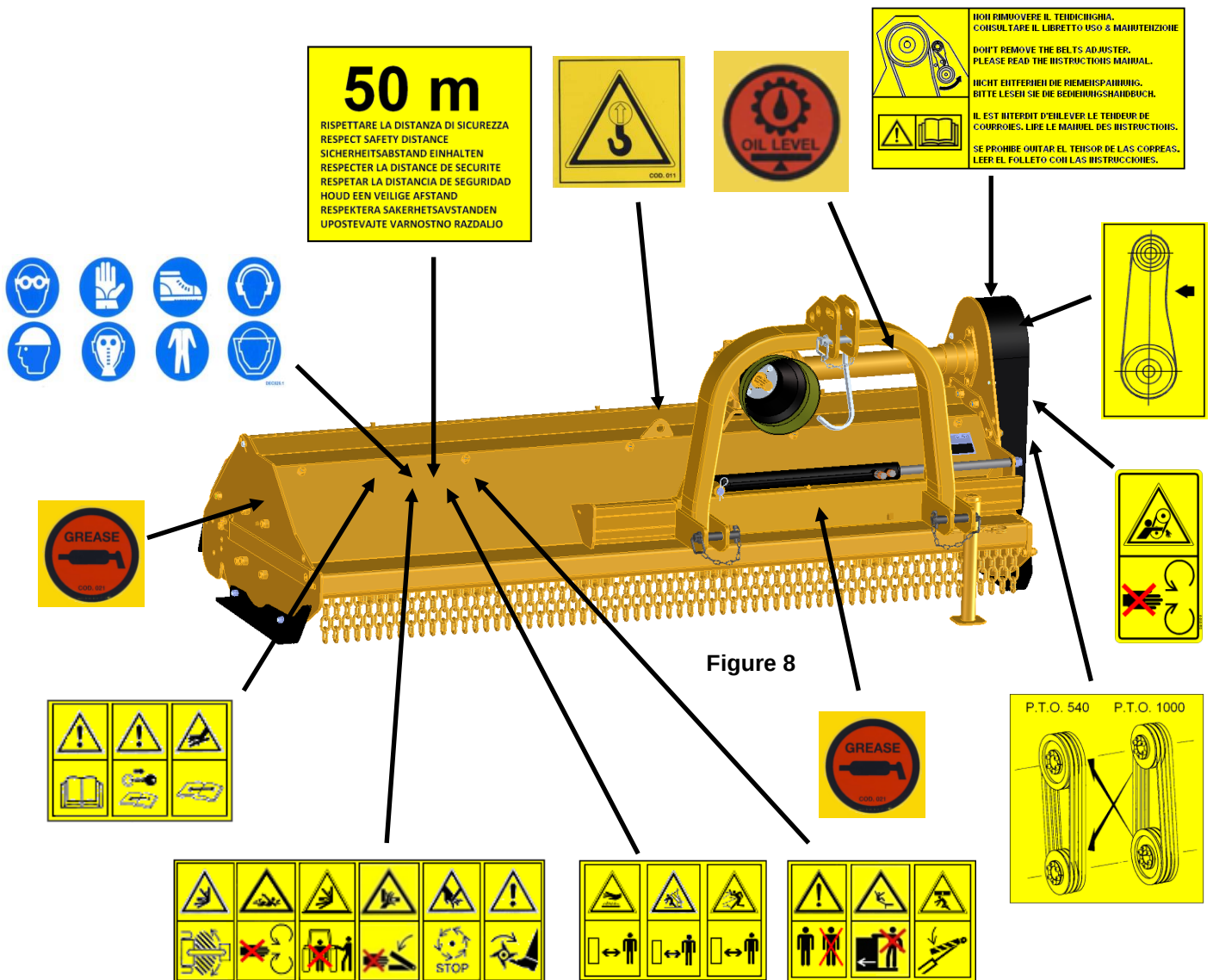
2.3.2. POSITION OF PICTOGRAMS ON THE MACHINE

The pictograms are inserted as indicated in diagram:

TBM



TBM/S



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.
 ATTENZIONE	Before getting out of the tractor and before performing any maintenance operations on the mulcher, use the parking brake, turn off the engine, remove the ignition keys from the dashboard, and wait for 5 minutes inside the cabin to ensure that the rotor and relative tools completely stop.
 ATTENZIONE	The safety of the user and of the people around him depends on his judgement and prudence in the use of the machine. It is therefore necessary to be fully aware of its functionality and all Safety Standards relative to its use.
 ATTENZIONE	The user must use all the safety devices and personal protection equipment (P.P.E.) during machine use, adjustment, repair and handling phases. 
 ATTENZIONE	The machine must always be in good working order and must only be repaired using original spare parts.

3.2. HANDLING AND TRANSPORTATION

Pay maximum attention to safety during loading and unloading operations, which must be performed by qualified staff. When lifting the machine you must use the appropriate lifting points, indicated in the pictograms (figure 10). Always perform a visual check before moving the machine so as to prevent unstable parts creating dangerous situations.

 CAUTELA	Never lift or handle the machine by fastening it to the rotor!
-------------	--



ATTENZIONE

The manufacturer declines any responsibility regarding any damages to persons, animals and property 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.**

TBM

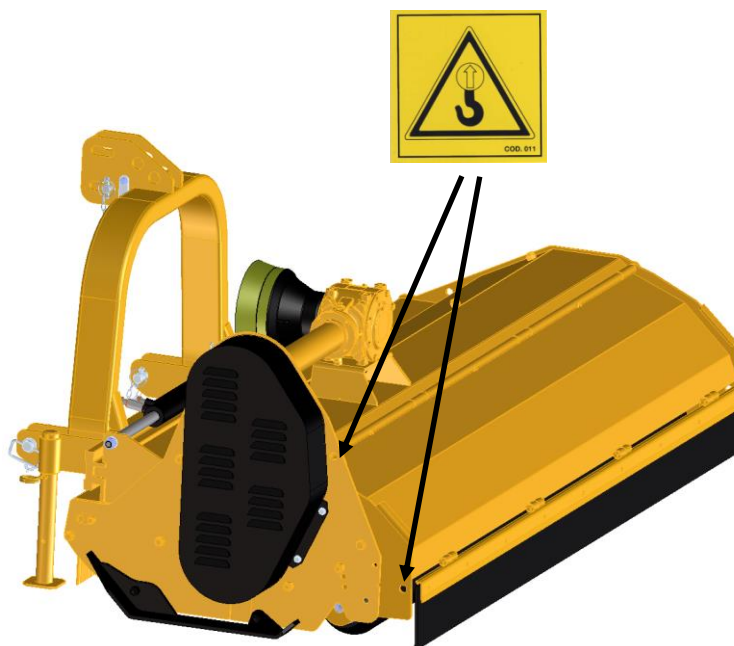
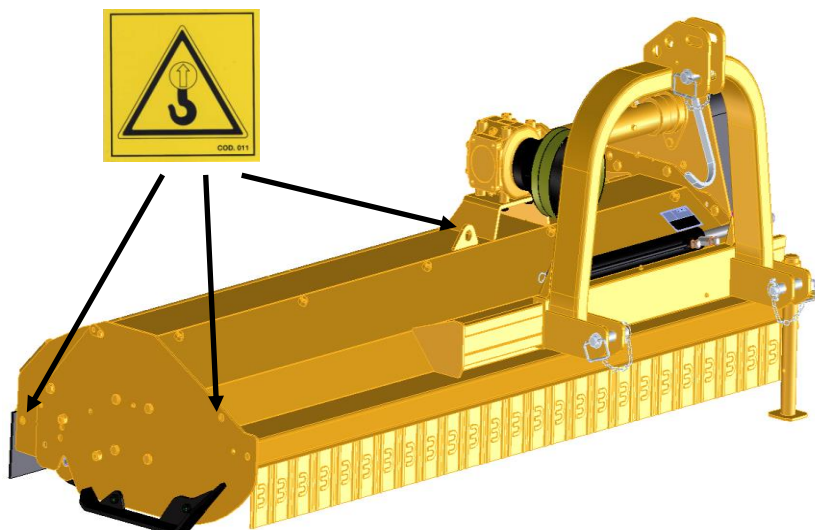
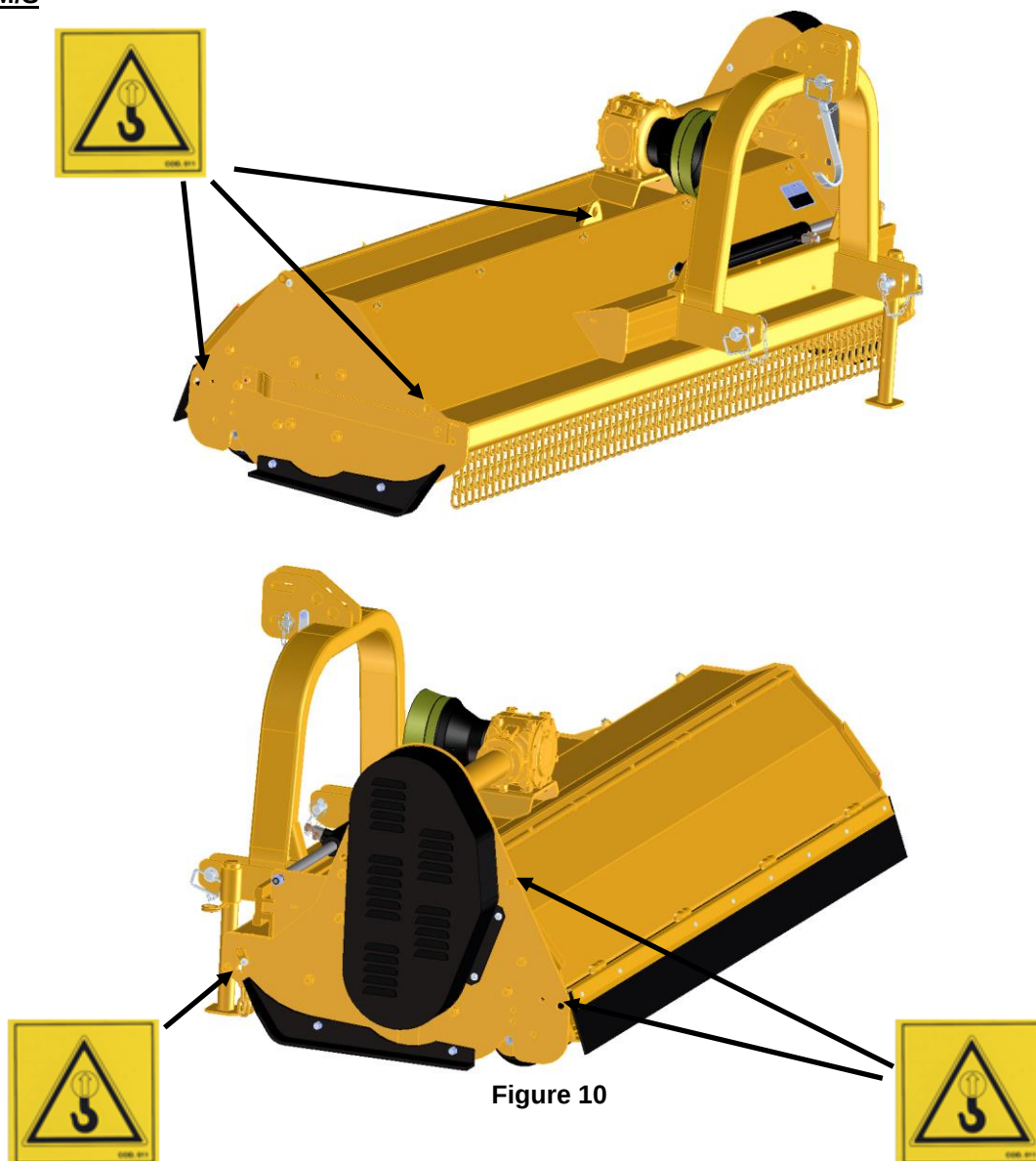


Figure9

TBM/S

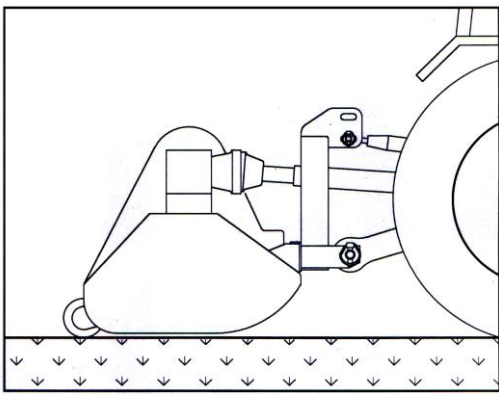


The machine is delivered fully assembled and in order to use it, you must simply connect it to the tractor.

3.2.1. TRANSPORTATION IN PUBLIC AREAS

 ATTENZIONE	If the machine must be transported on a public road, the road regulations must be strictly respected, paying utmost attention in choosing the speed.
	Before starting the transportation on the public road, you must install (if necessary) optional light bars.
	The means must be provided with orange or yellow blinking light.
	Before entering on a public road from a non-paved or dirty area, you must thoroughly clean the tires of the tractor from any residual mud.
 ATTENZIONE	During the transport on the road, the mulcher must be kept in transportation position and the PTO of the tractor must be switched off.

3.2.2. MACHINE TRANSPORT PROCEDURE

 ATTENZIONE	Before being transported, all machine parts must be in optimal status.
	1. Disengage the P.T.O. and wait for the rotor to stop completely;
	2. Lift the machine as much as necessary and keep it on its levelling roll/wheels, so that the transmission organs do not touch the ground (figure 12);
	 Figure 11
 ATTENZIONE	The machine weight changes the stability of the tractor-mulcher complex, influencing steering and braking capability. Therefore proceed at a moderate speed.

In particular, remember that the front axis must always be encumbered by a weight equal to at least 20% of the total weight of the tractor-mulcher complex.

Check the lifting capability and tractor stability using the following formula and, if necessary, apply ballasts on the front.

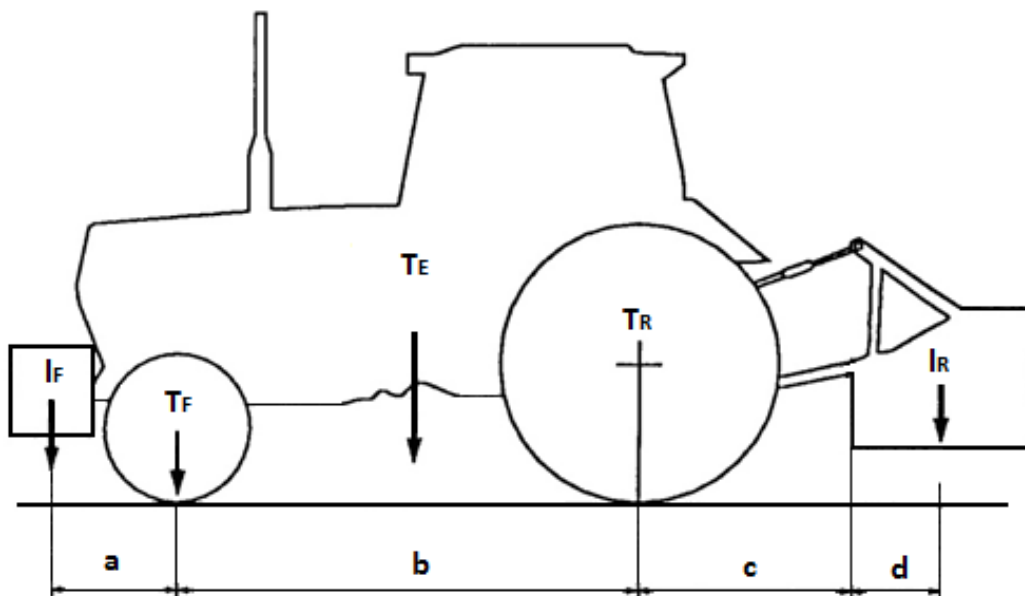


Figure 12

$$I_{F, \min} = \frac{(I_R \times (c + d)) - (T_F \times b) + (0,2 \times T_E \times b)}{a + b}$$

- T_E** = Weight of the tractor (empty)
- T_F** = Front axle load (empty tractor)
- T_R** = Rear axle load (empty tractor)
- I_R** = Rear mulcher weight/rear ballast
- I_F** = Front mulcher weight/front ballast
- a** = Distance from the centre of gravity of the front mulcher/front ballast to the centre of the front axle
- b** = Tractor wheelbase
- c** = Distance from the centre of the rear axle to the centre of the ball of the parallels of the tractor
- d** = Distance from the centre of the ball of the parallels of the tractor to the centre of gravity of the rear mulcher/rear ballast

 ATTENZIONE	The road transportation must be performed paying maximum attention to avoid putting the persons or other vehicles in danger.
 ATTENZIONE	During the transport, the machine must be properly secured and must stay within the outline of the tractor.

3.3. VISIBILITY

The working areas can be controlled using the rear view mirrors of the tractor and the operator's range of view.

 ATTENZIONE	While moving in reverse, dark areas may be created that cannot be seen using the rear view mirrors.
--	---

3.4. CONNECTION OF THE MACHINE TO THE TRACTOR

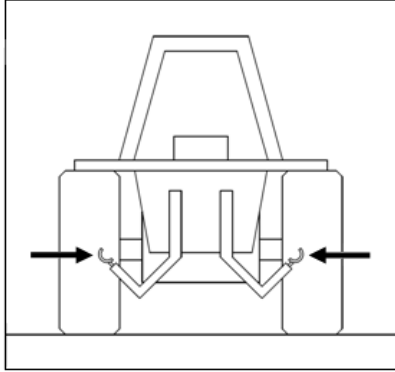
Before installing the machine, make sure that it is in perfect condition, placed on the ground, levelled and in stable position, that there is a proper amount of lubricant, that all parts subject to wear and/or deterioration are efficient and that the protections are complete and functioning.

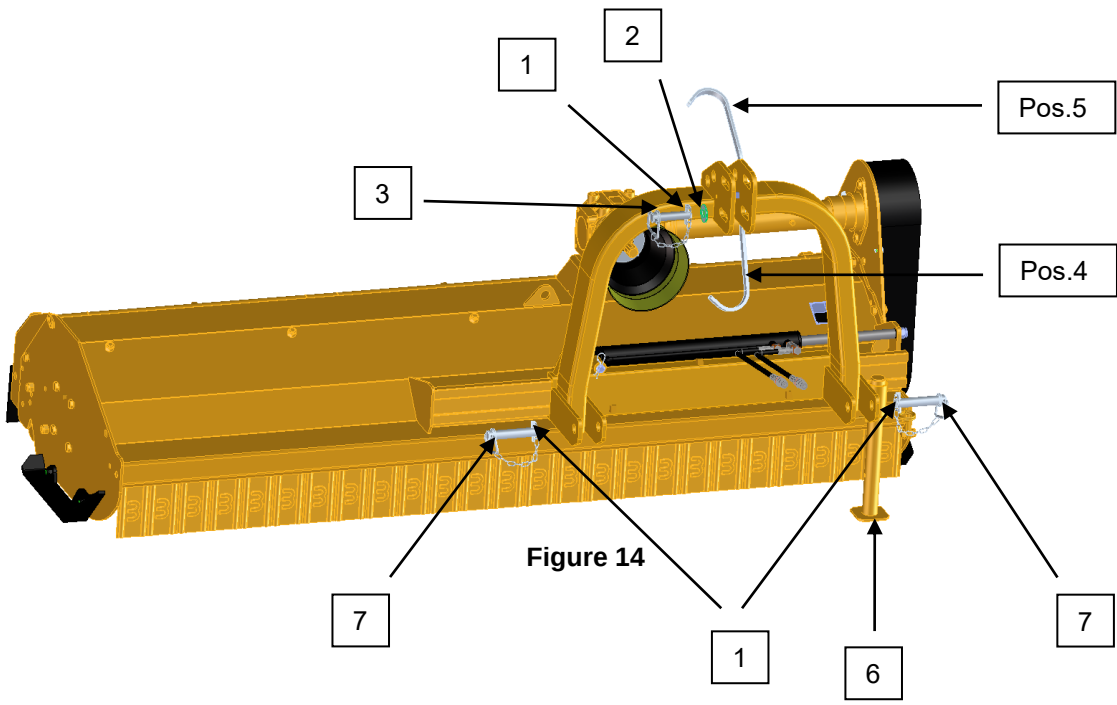
 ATTENZIONE	The user must check the proper connection between tractor and mulcher. The lifting capacity and the stability of the tractor must comply with the parameters described in chapter 3.2.2.
 PERICOLO	It is strictly forbidden to stand between the mulcher and the tractor during the connection phases and any unauthorised persons must be requested to leave the machine operating area.
 ATTENZIONE	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.

 PERICOLO	Before getting out of the tractor and before performing any maintenance operations on the mulcher, use the parking brake, turn off the engine, remove the ignition keys from the dashboard, and wait for 5 minutes inside the cabin as to make sure that the rotor and relative tools completely stop.
--	---

3.4.1. CONNECTION PROCEDURE

The machine must be connected to the tractor with a 1000 rpm driven power take-off, having suitable weight and power, in compliance with the standards in force in the country of use.

 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	1. Remove the safety pins (1), remove the washer (2) and the plugs (3-7) (figure 15); 2. Move the tractor in reverse until the rear lifting bars reach the couplings of the mulcher (figure 14);  Figure 13
	3. Use the tractor parking brake, turn the engine off, remove the keys from the dashboard and get off the machine;
	4. Connect the third point (tensioner) of the machine to the tractor, insert the provided pin (3), the washer (2) and the relative safety pin (1); adjust the length of the third point as to make sure that the pin is placed in the centre of the slot;
	5. Insert the pegs (7) and the relative safety pins (1);
	6. Lift the mulcher until the machine and tractor power points are taken to the same height and register the tensioner, taking the mulcher to a horizontal position; lift the support foot (6);

	 Figure 14
	7. Block lifting bars of the tractor to prevent the machine oscillating laterally, compromising the transversal stability of the complex.
	8. 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 "clack". If you do not hear the "clack", repeat the procedure;
 ATTENZIONE	9. Do not use a cardan shaft without proper protections compliant to the law requirements. DO NOT CLIMB ON THE CARDAN SHAFT, EVEN IF IT IS STOPPED. The cardan shaft is the transmission component that drives the mulcher; it must be chosen based on specific criteria that define its size and length. In the table below , the size of the cardan shaft is greater than the power absorbed during operations. This choice is necessary in order to ensure high resistance of the cardan shaft, in the phase of maximum extension.
	The manufacturer ensures that the cardan shaft provided along with the machine is of appropriate size to safely sustain the power absorbed during operations, if the use conditions respected. If replacing the cardan shaft, another one may be installed in compliance with CE standards, able to transmit the power indicated in table 3 of this paragraph.



Model	Maximum absorbed power		Transmissible power of the cardan shaft	
	kw	HP	kw	HP
TBM 160	22 – 26	30 – 35	37	50
TBM 180	26 – 29	35 – 40	37	50
TBM 200	29 – 33	40 – 45	44	60
TBM 220	33 – 37	45 – 50	44	60
TBM 250	40 – 48	55 – 65	44	60
TBM 270	51 – 55	70 – 75	55	75

Table 3

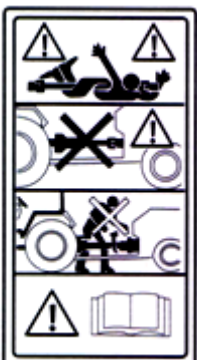


Model	Maximum absorbed power		Transmissible power of the cardan shaft	
	Kw	HP	kw	HP
TBM/S 180	26 – 29	35 – 40	37	50
TBM/S 200	29 – 33	40 – 45	44	60
TBM/S 220	33 – 37	45 – 50	44	60
TBM/S 250	40 – 48	55 – 65	44	60
TBM/S 270	51 – 55	70 – 75	55	75
TBM/S 285	59 – 74	80 – 100	74	100
TBM/S 300	59 – 74	80 – 100	74	100

Table 4



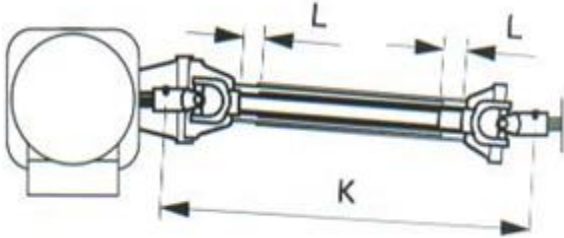
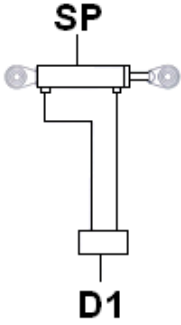
Before performing any operation, carefully read the instruction booklet attached to the cardan shaft.



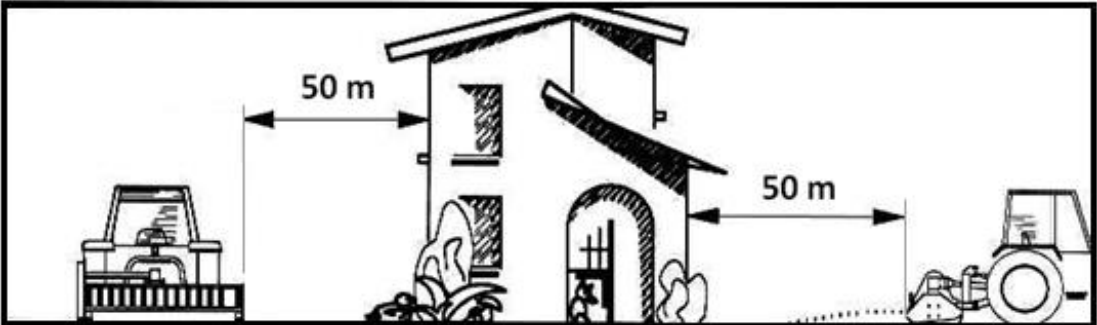
During operation, the cardan shaft may generate dangerous situations.

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;
- Turn off the engine of the tractor before operating on the cardan shaft or on the machine;
- 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 appropriate support;
- Wear appropriate clothing (non-resistance, not loose), especially tight clothes (e.g. : overalls with wrist and ankle protection).

	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 tractor; if necessary adapt the length of the provided cardan shaft, making sure that the telescopic tubes are staked by length as to create at the ends a jog L of 40 - 50 mm (figure 16).  Figure 15
	This operation must be performed at the first installation, after each replacement and every time the machine is installed on another tractor. 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 perform some opening, closing and articulation movements on the machine to make sure that the tubes of the shaft are free to slide without any obstacles.
	Grease the cardan shaft following the recommendations provided in the instruction manual of the cardan shaft. Do not operate with cardan shafts without guards. Carefully read the instruction booklet attached to the cardan shaft.
	10. Rotate the sustaining bracket of the cardan from position (4) to position (5) (figure 15);
	11. If the hydraulic jack is present: connect the transmission tubes of the jacks (figure 17);  Figure 16 SP: movement jack D1: double effect distributor
	The machine is equipped with a jack that triggers the movement; the machine is supplied from the tractor hydraulic system via the quick coupling tubes. the tractor must be provided with a double effect distributor with operating pressure of 140-160 bar.
	After connecting the tubes, perform some movement operations to discharge any air bubbles that may form inside the jack.
	Check that all safety pins are properly inserted and functioning correctly. Make sure that you inserted the anti-threading devices in the coupling pin. Make sure that the quick couplings are properly inserted.
	12. The machine is ready to be started.

3.5. 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 safety distance equal to the machine operating radius of 50 m.  Figure 17
	- Do not allow any persons, animals or things to get near and to stand in the machine operating radius.
	- Before using the machine, the operator must know the commands and the features of the 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. 
	- Always keep the guards in perfect sate, properly placed and effective.
	- The engine of the tractor must be stopped, the parking brake engaged, the PTO disengaged, the ignition key out of the dashboard and placed in a secure place.
	- The rotor and relative machine tools must be stopped.
	- Always check the machine verifying the nuts fastening, checking for any damage; if any damage is found, it must be repaired before starting the machine and thus restoring the machine 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 impacts in compliance to the state of the art technologies. Contact the manufacturer to request any further information regarding this case.
	- Check the position and status of the terrain in the operating area; make sure that they do not affect in any way the stability of the assembly tractor-mulcher.
	- 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

 PERICOLO	1. Using the distributor that controls the movement jack, move the machine until it reaches the operating area;
 PERICOLO	2. Using the elevator commands, lower the machine until reaching the desired cutting height;
 ATTENZIONE	3. Engage the P.T.O. and gradually accelerate the tractor until reaching the operating speed of 540 rpm (option 1000 rpm /min)
	4. Engage running mode and start the operating process;
	5. Go along a short distance with the machine engaged;
	6. Decelerate the tractor as much as possible;
	7. Stop the tractor engine, engage the parking brake, disengage the PTO, take the ignition key out of the dashboard and place it in a secure place.
	8. Get off the tractor and make sure that there are no oil losses at the mulcher hydraulic tubes couplings;
 PERICOLO	9. Do not use your bare hands to check for any loss of liquids under pressure;
	10. Check the quality of the work performed; if the quality is not good enough, adjust the operating height using the elevator, avoiding the contact between the cutting components (hammers or blades) and the terrain; repeat the steps from point 1 and if necessary review the machine adjustment operations indicated in paragraph 3.5.1.

3.5.1. MACHINE ADJUSTMENTS

3.5.1.1. RECOMMENDED SPEEDS

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 work exclusively in compliance with the declared use.

	Excess speed puts excessive stress on mobile machine parts, thus wearing them out ahead of time. 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.
--	--

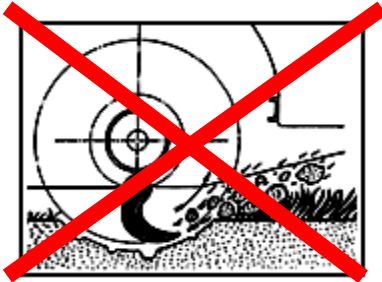
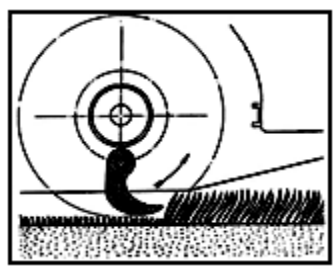
In the table below are indicated the recommended speeds that should be respected in order to obtain maximum performance and in particular:

	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 pruning															
Olive - peach pruning															
Bushes - branches															

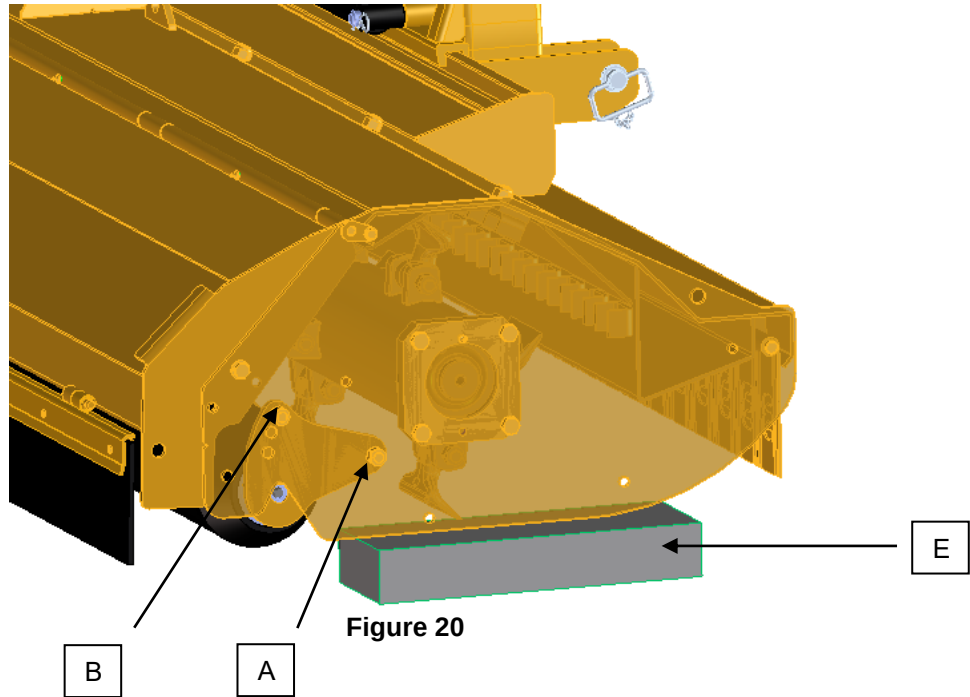
Table 5

3.5.1.2. CUTTING HEIGHT ADJUSTMENT

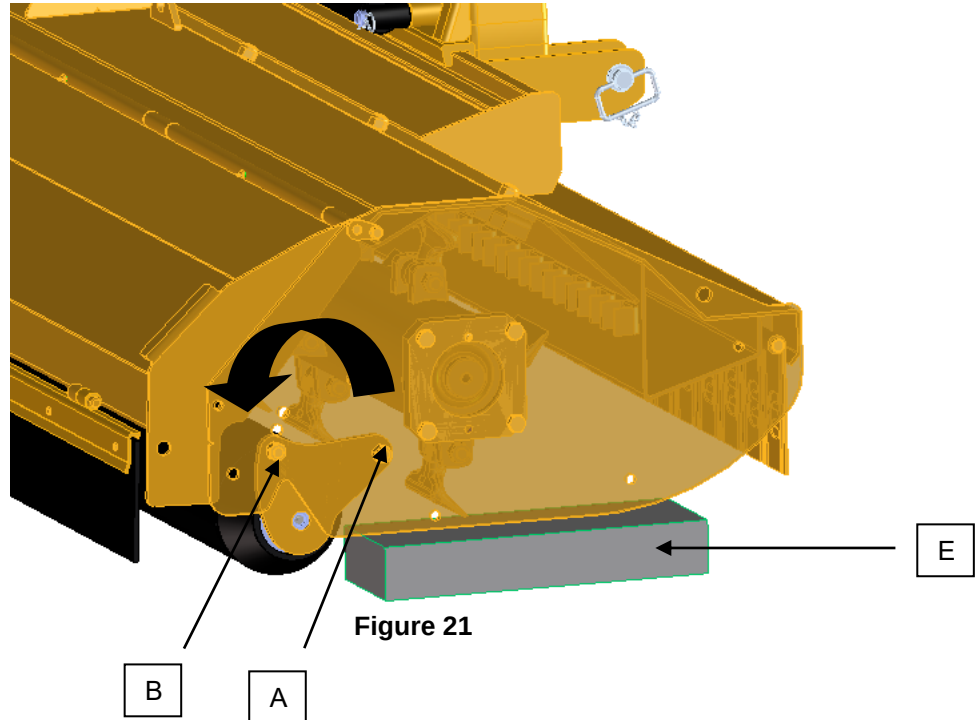
	Before adjusting the machine cutting height, carefully read and fully understand the instruction manual.
	All adjustment operations must be performed at authorised workshops by specialised personnel.
	The operating height must be adjusted as to make sure that the cutting tools (hammers or blades) do not come into contact with the terrain causing projection (figure 19-20).

	 Figure 18 NO	 Figure 19 YES
--	--	--

In order to adjust the cutting and therefore the operating height, act on the position of the levelling roll of the machine as follows:

 ATTENZIONE	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.
 PERICOLO	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.
	1. Level the machine leaving a thickness E of about 8 cm under the sides; 2. Make sure that the PTO is disengaged, brake and turn off the tractor; 3. Loosen bolt A and remove bolt B;  Figure 20

4. Rotate the plate of the roll, until centring the slot in the desired position of the plate with that of the side;
5. Remount bolt B;
6. Tighten bolts A and B



The adjustment operations must be performed both on the left and on the right side of the machine.

3.6. MACHINE IN WORK STAGE



PERICOLO

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.



PERICOLO

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

When operating on the roadside, the operating radius of the tractor must be delimited using appropriate signals, safety personnel and means in compliance with the laws in force in the country of use.

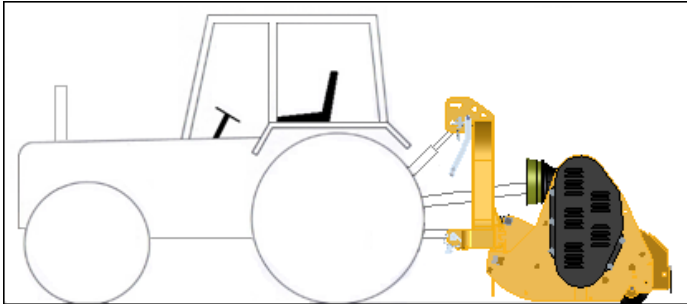
 PERICOLO	The operator must make sure that no person or animal stops within the radius of action of the same during machine functioning. The user must immediately stop the machine and keep away any unauthorised person. Never activate the machine near to persons standing or transiting within the radius of action of the machine.
 PERICOLO	It is strictly forbidden the use of the machine away from the terrain to cut down trees or hedges as the risk of pieces being thrown is high. The use of the mulcher is strictly forbidden if the tractor to which it is connected is not provided with 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.
 ATTENZIONE	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.
 PERICOLO	Make sure that all machine parts function regularly when operating. 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.
 PERICOLO	It is strictly forbidden to remove and/or change the guards installed on the machine.
 ATTENZIONE	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.
 PERICOLO	Pay attention to the risk of accidental ignition of the electric arc machine with overhead power lines.
 PERICOLO	It is strictly forbidden to adopt configurations that prevent the user working on the tractor from seeing the machine.
 PERICOLO	It is strictly forbidden to adopt configurations that put at risk the stability of the tractor - mulcher assembly. The tractor must always stay on plane terrains that can sustain its weight. The user must periodically assess the risk, depending on the working area, assuming full responsibility for the damage caused due to any incorrect assessment.

 ATTENZIONE	It is strictly forbidden to use the machine as sustain point for the tractor. The pressure exerted by the tractor would collapse the frame of the machine with consequent rupture of the same.
 ATTENZIONE	Never lean or press the rotor on logs, 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.
 PERICOLO	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 relevant authorities and move away, if possible, the tractor-mulcher assembly, taking it to a safe area, follow the procedure in paragraph 3.7. and go to a safe place.
 PERICOLO	At the end of the operating process the machine must be placed on the ground. Before getting out of the tractor, use the parking brake, turn off the engine, remove the ignition keys from the dashboard, and wait for 5 minutes inside the cabin to make sure that the rotor and relative tools completely stop.
 ATTENZIONE	If during operation the mulcher remains entangled in the thick vegetation or any metallic scrap, such as, brambles, shrubs, thick bushes, steel cables and any other material that may stop the proper operation of the machine, the operator must engage the tractor brake, turn off the engine, remove the ignition keys from the dashboard, and wait for 5 minutes inside the cabin as to make sure that the rotor and relative tools completely stop. 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 are no damages, get in the tractor and proceed with the operation following the indications in paragraph 3.5 "Machine start-up" and paragraph 3.6 "Machine running".

MULCHING PROCEDURE

 ATTENZIONE	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.
 ATTENZIONE	The tractor must always stay on plane terrains that can sustain its weight.

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

	1. With the tractor engine idling, insert the PTO of the same.
	2. Gradually accelerate until reaching a speed of 540 rpm (upon request 1000 rpm);
	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.
  Figure 22 Figure 23	
	The mulcher should not be moved to a new operating area if the rotor and the tools haven't stopped yet.

3.7. MACHINE STOPPAGE

In order to stop the machine, the tractor PTO must be disengaged and the rotor and related tools will also stop.

	Always remain inside the cab during operations and make sure there are no persons, animals or objects within the work range of the machine. Any intervention on the machine must be performed with the parking brake engaged, the engine stopped, the ignition key removed from the dashboard and kept and only after waiting for about 5 minutes inside the cabin to allow the rotor and related tools to stop completely.
--	---

3.8. MACHINE DISCONNECTION

When disconnecting the machine from the tractor you must:

	1. Make sure that the tractor- mulcher assembly is placed on a stable, levelled terrain.
	2. Lower the machine resting feet.
	3. Disengage the tractor PTO and wait for the rotor and related tools to stop;
	4. Bring the engine of the tractor in idle mode, use the parking break, turn off the tractor, remove the ignition key from the dashboard and store it properly;
	5. Descend from the driver position.
	6. Disconnect the cardan shaft using the appropriate triggers;
	7. Rest the Cardan shaft on the relevant support.
	8. Disconnect the tie rod of the third point;
	9. Fix the third point to the appropriate support on the tractor.
	10. Disconnect the arms of the rear hydraulic elevator of the tractor from the parallel connection points of the mulcher;
	11. Disconnect the supply cables of the jack;
	12. Get back inside the tractor.
	13. Start the engine and move away carefully.
	The machine must be parked on flat land and within a protected area, so as to prevent unauthorised staff from approaching.

3.9. CLOGGING

	Before removing the machine clogs, carefully read and fully understand the instruction manual.
 ATTENZIONE	Keep in mind that any change of the field conditions, such as the type and the amount of material to be mulched, may clog the mulcher.
 ATTENZIONE	If the machine clogs, follow the indications in paragraph 3.8 "MACHINE DISCONNECTION" and bring the machine to an authorised workshop .

At the workshop:

	1. Hook the machine, turn it over and place it on appropriate supports;
 PERICOLO	At the workshop, use appropriate equipment (hoists and beams) to 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).
	2. Manually unclog the machine;
	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 3.5 "Machine connection and start-up" and resume work following the methods described in paragraph 3.6.

4. MAINTENANCE

 ATTENZIONE	In case of damage of the machine, the user must perform the machine shut-down procedure, set the tractor engine to idle mode, use the parking break, turn off the engine, disengage the PTO, remove the ignition key and wait inside the cabin for about 5 minutes until the rotor and the tools of the machine stop. Descend from the driver position to check the nature of the problem and contact the authorised workshops in order to solve it.
	Before performing any maintenance operation, carefully read and fully understand the instruction manual.
 PERICOLO	The machine must be brought in a properly equipped workshop, authorised to perform all ordinary and extraordinary maintenance operations with specialised personnel. The machine must be stopped and disconnected from the tractor. The maintenance and repair operations must not be performed in open space or in improperly equipped workshops.
 ATTENZIONE	The specialised staff must use the safety devices and personal protection devices (PPD) during use, maintenance, regulation, repairs and handling of the machine. 
 ATTENZIONE	Any maintenance operation can be performed only after the temperature of the oil and other hot parts of the machine is below 60 °C.
 PERICOLO	Do not carry out repairs of which you have no knowledge. Always follow instructions and contact the manufacturer if they are not available.
 ATTENZIONE	Do not use lifting points different to those prescribed.
 ATTENZIONE	Make sure that the lifting equipment is suitable to carry out the operations in compliance with Safety Standards 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.

4.1. MACHINE HOT POINTS

Before any maintenance intervention, make sure that the potentially hot parts have dropped to a temperature below 60°C.
Pay extreme attention to:

- Drive sump;
- Gearbox;
- Pulleys, automatic belt tensioner and belts;
- Hydraulic tubes.

4.2. MAINTENANCE INTERVENTIONS

Qualified staff must precisely know and follow the indications and must stop and disconnect the machine following the indications in paragraphs 3.7. and 3.8.

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 maintenance times and regulations jeopardises the correct operation of the machine and its duration and consequently makes warranty validity null and void.

Intensify the frequency of maintenance in heavy duty operating conditions (frequent stopping and starting, extended winter period, etc....).

4.2.1. GREASING

Periodic and systematic greasing and lubrication of the machine maintain its performance and increase its useful life span.
Grease the indicated points using an appropriate universal greasing pump that can be found in any workshop.

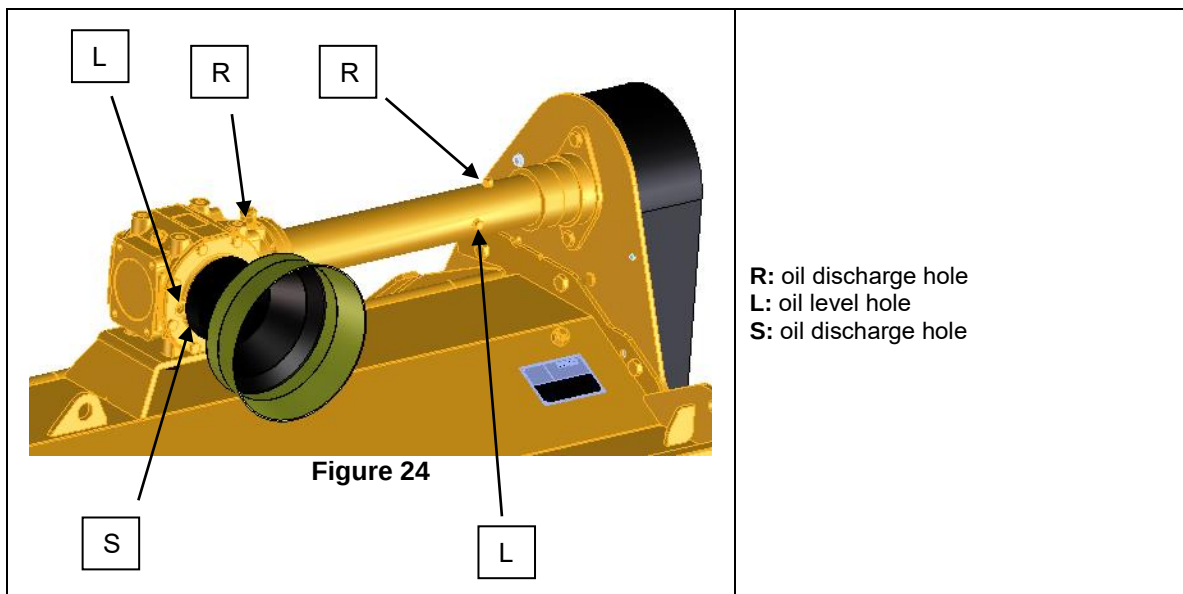
LUBRICATION OF THE TRANSMISSION UNIT:

	Before taking any action on the transmission unit, properly clean the areas around the caps, to avoid any dirt intrusion inside the units.
--	--

For the transmission units:

- 1- During the first 20 hours check the oil level in the gearbox: the oil should reach the level hole. If necessary, add some more oil; then check the oil level every 50 hours;
- 2- After the first 40 working hours replace all the oil in the multiplier. Then repeat the operation every 250 working hours.

To discharge oil from the S hole, it is necessary to remove the protective cap from the gear box.



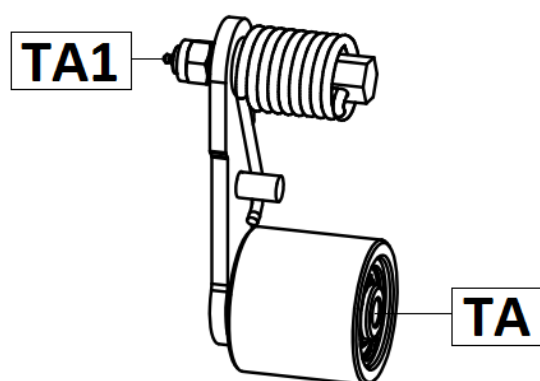
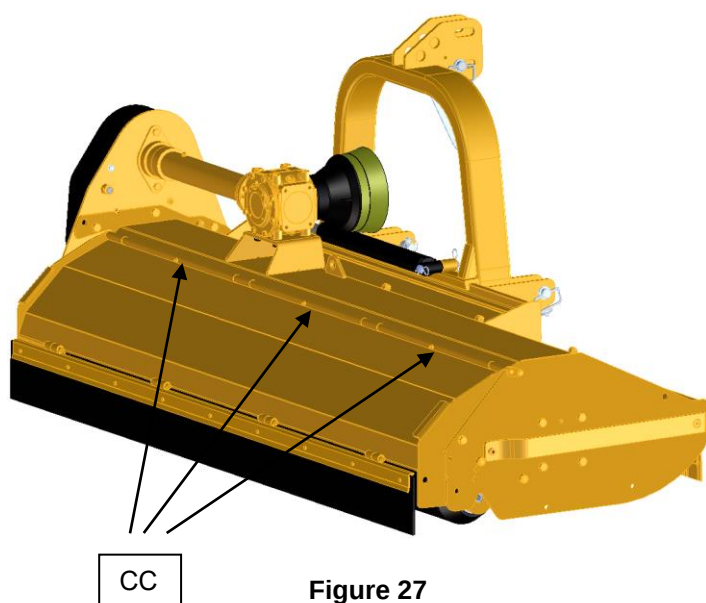
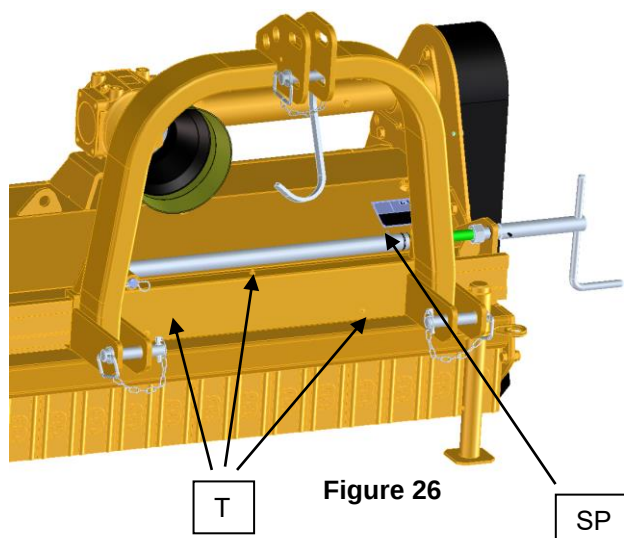
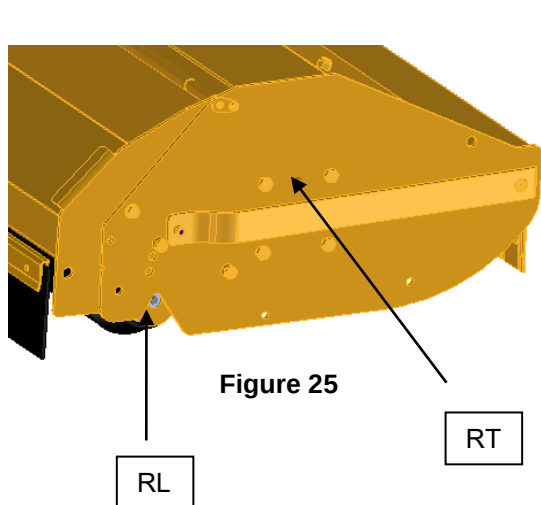
OVERALL GREASING:

 ATTENZIONE	Before taking any action on the machine greasing points, properly clean the areas around the caps, to avoid any dirt intrusion inside the points.
--	--

Pos.	Name	Lubrication intervals	Notes
RT	Rotor	8 hours	Grease by activating the manual pump 1-2 times to prevent damage to the internal seals of the supports.
RL	Levelling roll	8 hours	Grease by activating the manual pump 1-2 times to prevent damage to the internal seals of the supports.
T	Tiller	8 hours	Grease it using the manual pump 1-2 times on the 3 grease fittings of the tiller.
SP	Mechanical movement	8 hours	Grease it using the manual pump 1-2 times on the 3 grease fittings of the mechanical movement.
TA	Automatic belts adjuster	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 belts adjuster	8 hours	Grease it using the manual pump 1-2 times.
CC	Hood Hinge	8 hours	Grease it using the manual pump 1-2 times on the grease fittings of the hood hinge.
RU	Steering wheels optional	8 hours	Grease it using the manual pump 1-2 times on the 4 grease fittings of the wheel brackets.

Table 6

	Periodic and systematic greasing and lubrication of the machine maintain its performance and increase its useful life span.
---	--



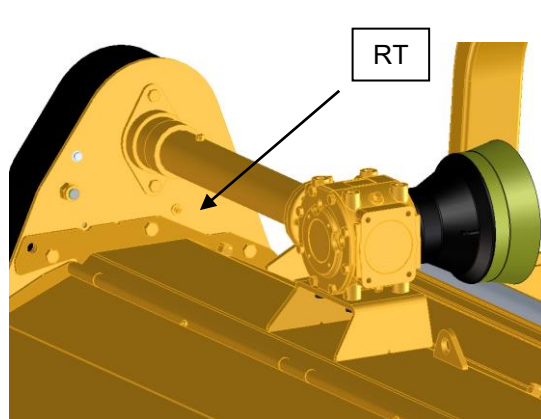


Figure 29

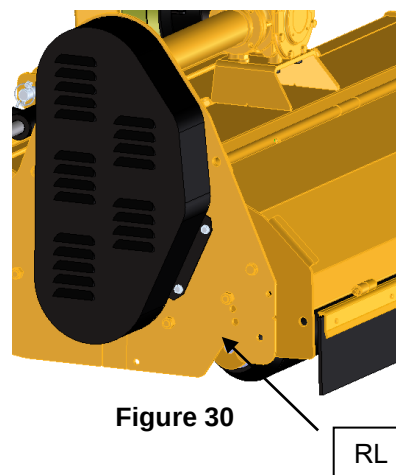


Figure 30

OPTIONAL:

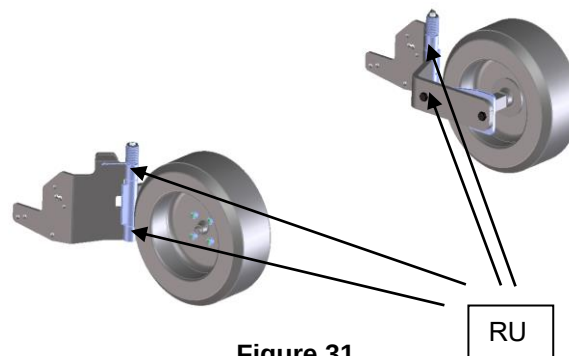


Figure 31

Only use a manual greasing pump in order to prevent laceration of the bearing seals and the grease passage piping.



 LUBRIFICANTI RACCOMANDATI - recommended lubricant empfohlenen Schmiermittel - lubrifiant recommandé							
	PETRONAS	TAMOIL	ENI	IP	ESSOMOBIL	SHELL	TOTAL
	AMBRA HYPOIDE 140	TAMGEAR MP 85W/140	ROTRA MP 85W-140	PONTIAX HD 85W/140	MOBILLUBE HD 85W/140	SPIRAX S2 A 85W/140	EP 85W/140
 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

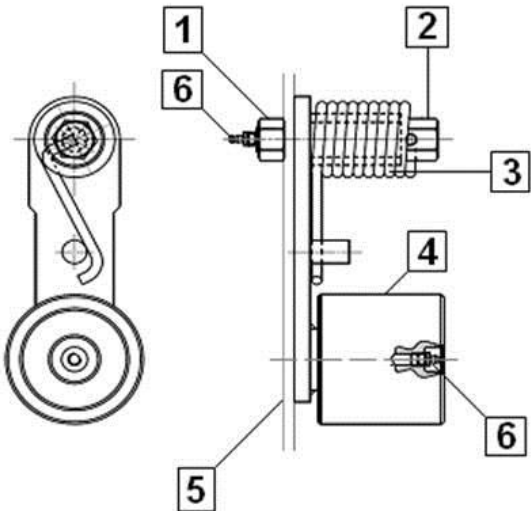
Table 7

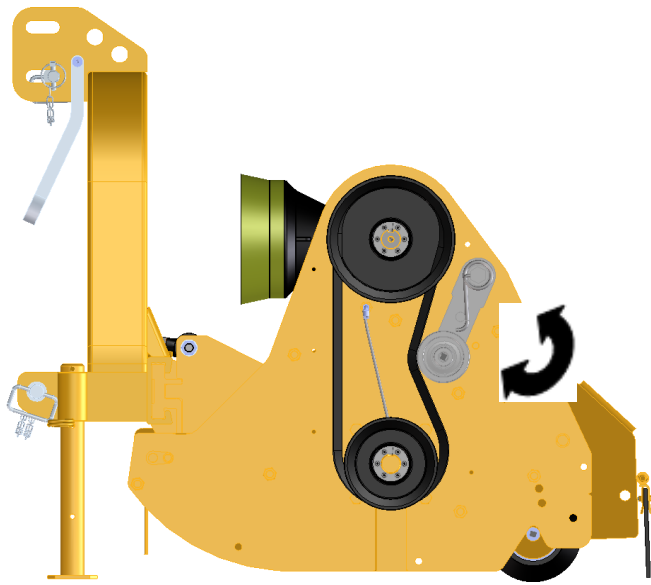
4.2.2. ADJUSTMENT OF TRANSMISSION BELT TENSION

	Before adjusting the tension of the belts, carefully read and fully understand the instruction manual.
 PERICOLO	All adjustment operations must be performed at authorised workshops by specialised personnel.
 ATTENZIONE	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.
 ATTENZIONE	There is no need to intervene on belt tension with the automatic belt-tensioner. An intervention of the belts tension may be necessary only in case of: • Mechanical breakage of the automatic tensioner spring (figure 33); • Loosening of the nuts that fasten the tensioner.

BELTS TENSION ADJUSTMENT PROCEDURE:

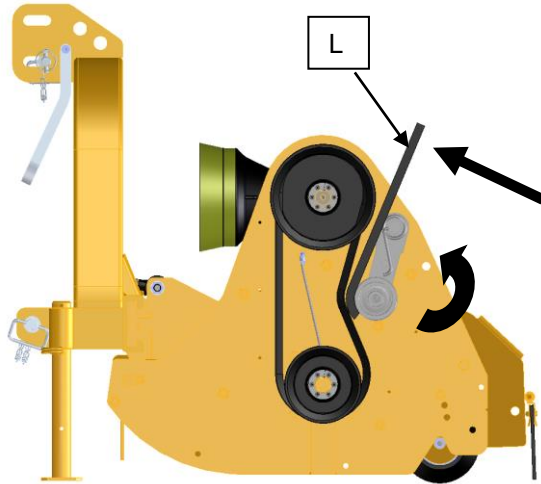
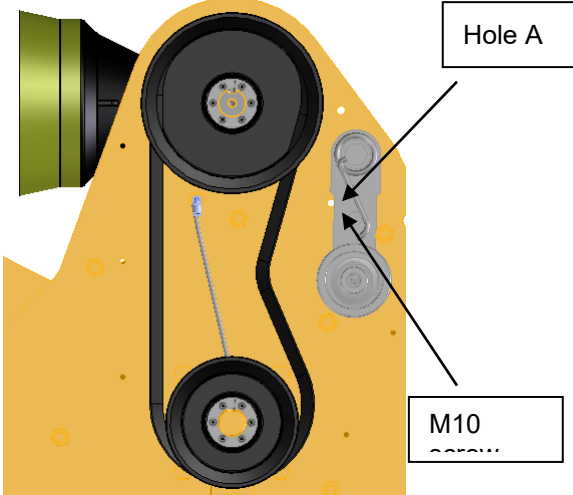
Proceed as follows to adjust the tension of the transmission belts:

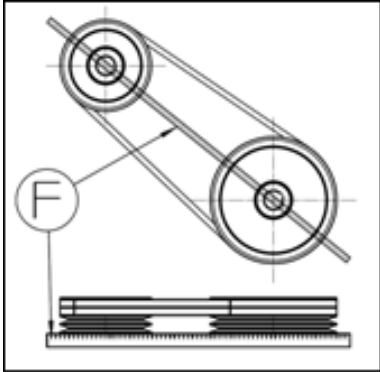
	1. Remove the transmission covering casing.														
	2. After replacing the spring or any other damaged part, take the tensioning unit (figure 33) and place it on the side of the mulcher, inserting the hex bolt 30 as shown in figure 34;														
 <table border="1" data-bbox="1050 1458 1437 1861"> <thead> <tr> <th>Pos.</th><th>Name</th></tr> </thead> <tbody> <tr> <td>1</td><td>Self-locking nut M20</td></tr> <tr> <td>2</td><td>Hex bolt of 30</td></tr> <tr> <td>3</td><td>Tensioning spring</td></tr> <tr> <td>4</td><td>Sliding point</td></tr> <tr> <td>5</td><td>Machine side</td></tr> <tr> <td>6</td><td>Greaser</td></tr> </tbody> </table> Figure 32 Table 8		Pos.	Name	1	Self-locking nut M20	2	Hex bolt of 30	3	Tensioning spring	4	Sliding point	5	Machine side	6	Greaser
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.
	5. Lock the counter-nut M20;
	6. Now, after properly tensioning the belts, check that the belt tensioning unit may rotate freely. Apply pressure to the roll, move it a few centimetres from the belts and release it. The roll must run freely;
	7. Remount the crankcase using the appropriate screws.
	 Figure 33
 ATTENZIONE	Do not work without belts protection casing.

4.2.3. REPLACING THE TRANSMISSION BELTS

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. Using a counterbalanced lever, put pressure on the roll pulling it outside until managing to insert a screw M10 x30/40 in hole A, then release it, slowly leaning the belt tensioner plate on the screw inserted in hole A;
	 Figure 34  Figure 35
	3. Now there should be no more pressure on the belts, thus allowing the operator to replace them;
 CAUTELA	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.
	4. After replacing it, exert greater pressure on the sliding roll until removing the screw M10 from hole A, then slowly bring the belt tensioner roll near the belts and lean it on them. The roll sustained the initial pre-load and no further interventions are required;
 ATTENZIONE	When you need to check the tensioning or re-tension the belts tensioner, follow the indications in chapter 4.2.2.

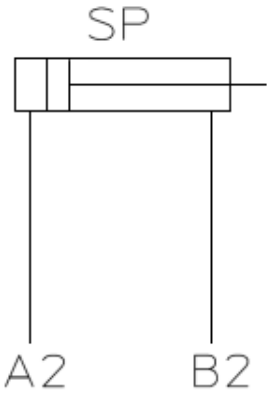
	The pulleys must be aligned with each other: use a ruler F to check that this occurs.  Figure 36
	5. Remount the crankcase using the appropriate screws.
 ATTENZIONE	Do not work without belts protection casing.

After replacing the belts, adjust them as described in chapter 4.2.2.

4.2.4. HYDRAULIC PLANT

 ATTENZIONE	Check the machine visually to make sure that there are no loose fittings, piping with scratches, cuts or other signs of wear. Tighten the loosened fittings and replace the worn or damaged pipes.
--	---

The hydraulic system diagram is indicated in figure 38 and is made of:

SP: Movement jack A2 – B2: Tractor distributor	 Figure 37
---	--

In order to connect the machine consult chapter 3 paragraph 3.4

HYDRAULIC TUBING REPLACEMENT PROCEDURE

 ATTENZIONE	1. Before removing a hydraulic tube, make sure that any residual pressure was discharged from the system;
	2. Precisely identify the damaged tube and loosen using an appropriate key the two connection points, paying attention to any possible leakages of hydraulic fluid;
 ATTENZIONE	3. Replace the damaged tube using only original spare parts;
	4. Before installing the new tube make sure that the connection points are in proper state (threads, seals, etc.);
	5. With the proper tools screw clockwise the fittings of the hydraulic tubes that present leakage. Do not tighten excessively so as not to ruin the threading on the fittings.
 ATTENZIONE	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.
 ATTENZIONE	The gathered oil must be disposed of in compliance with the laws in force in the country of use.

4.2.5. TOOLS WEAR CHECK

The mulcher tools must be visually checked for any signs of wear. Replace them if the material is not perfectly cut or when observing that a slight increase of the absorbed power generates a significant increase of the oil temperature of the mulcher. If the machine is used with tools that are not sharpened, its performance will decrease.

The dimensions and the weights of the tools are strictly controlled: if they are replaced completely, the rotor might not require a new dynamic balancing (refer to: "TOOLS REPLACEMENT PROCEDURE") TOOLS REPLACEMENT PROCEDURE

Broken tools or tools that are too worn transmit vibrations to the machine. In this case, stop the job immediately and only start again after the tools have been replaced.

 ATTENZIONE	Replace the worn and/or damaged tools with original tools distinguished by the Berti mark.
--	--

Hammer type "A":

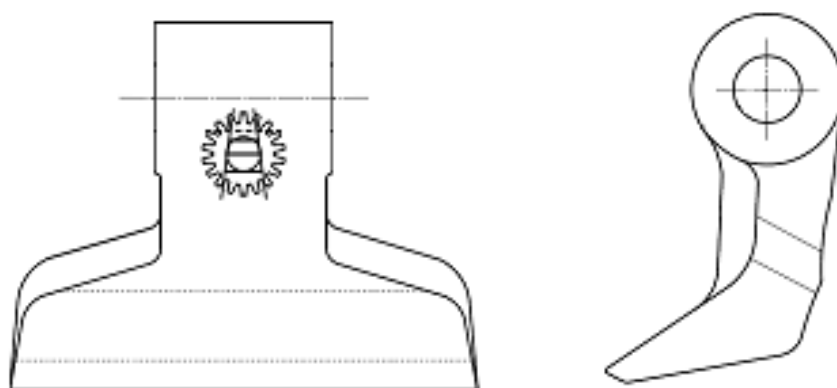


Figure 38

Universal blade "Y":

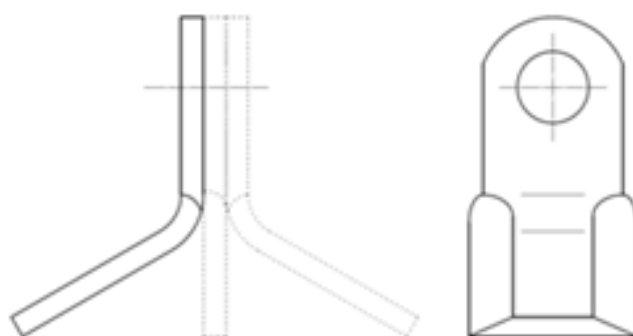


Figure 39

Only for TBM/S

Option hammer type "M":

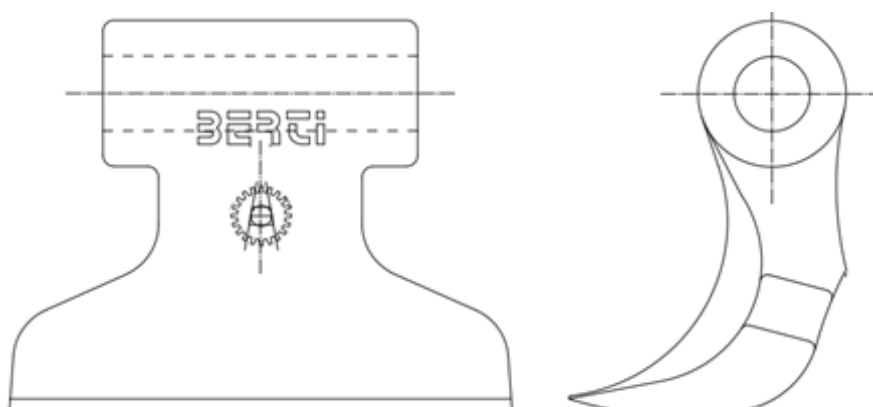
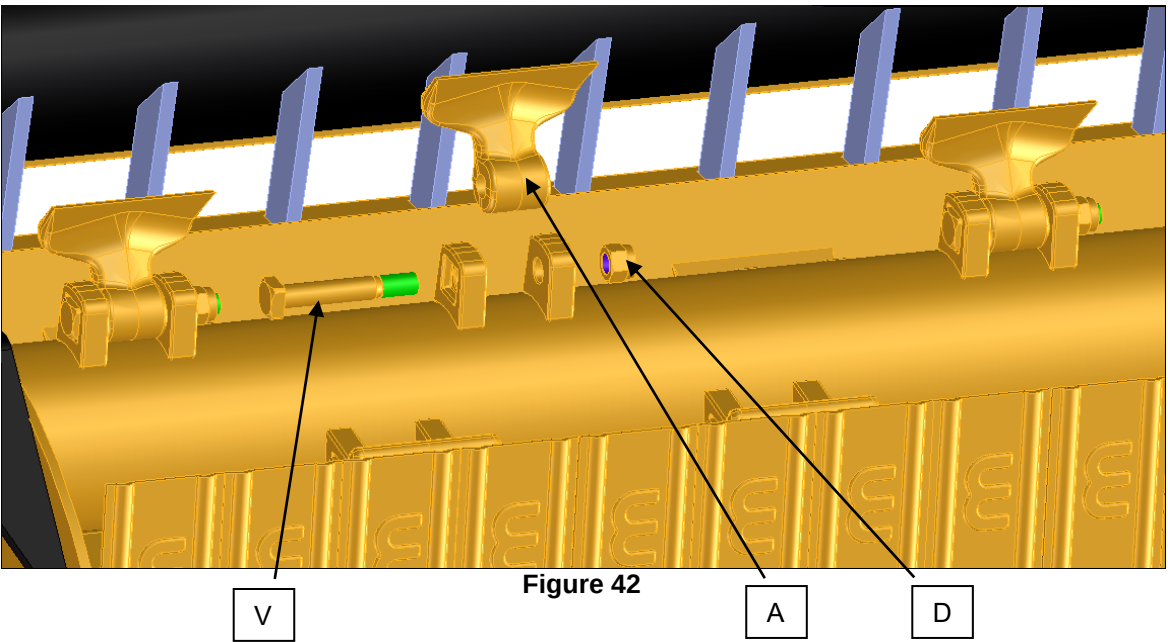
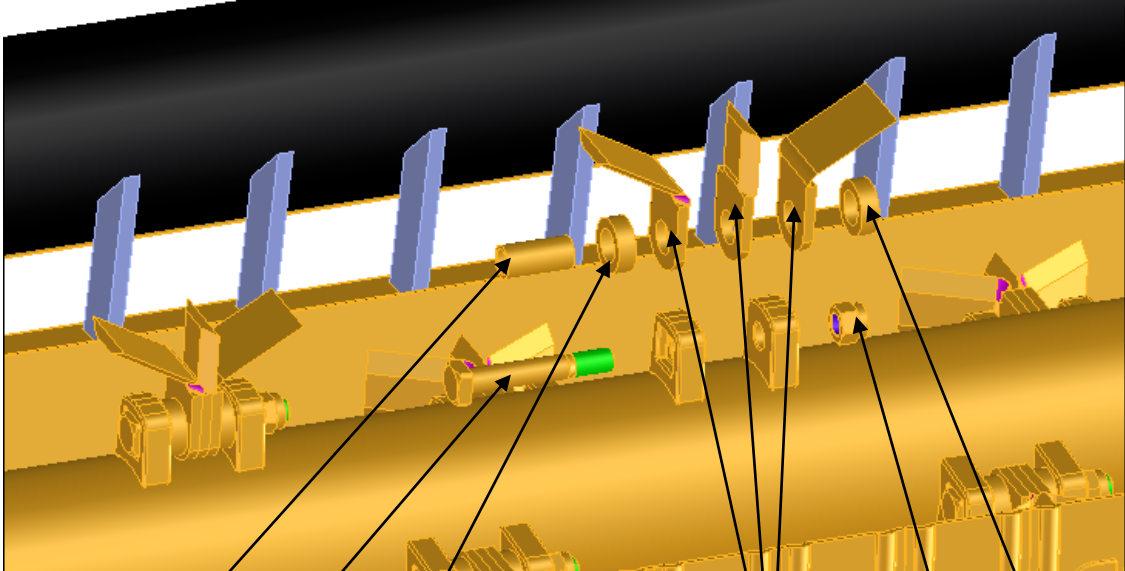


Figure 40

Duration of the tools depends on the type of use and type of land worked. They should be fully replaced after about 200 working hours.

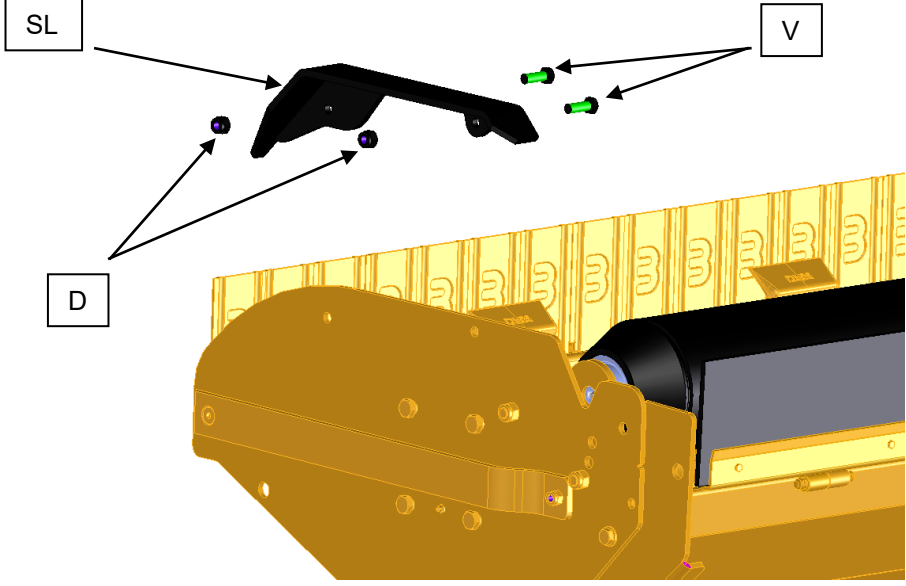
4.2.5.1. TOOLS REPLACEMENT PROCEDURE

	If an individual tool must be replaced, it is recommended to replace the entire range. Not using original spare parts can cause the machine to vibrate anomalously. Pay attention to the direction in which you assemble the tools.  Figure 41
	Hook the machine, turn it over and place it on appropriate supports; At the workshop, use appropriate equipment (hoists and beams) to 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.
	IF THE MACHINE ROTOR USES HAMMERS, PROCEED AS FOLLOWS:
	Unscrew nut D, pick up hammer A and remove screw V (Figure 43). After removing the hammer, check the wear condition of the supports, paying particular attention to the oval holes, the squared housing of the screw head. If any of the described phenomena are present, contact the manufacturer and request further indications.  Figure 42 V A D
	Replace the new hammer A placing it between the rotor supports, insert the new screw paying attention to match the square head of the screw with the square housing on the support. Mount the new nut and fasten it.

	IF THE MACHINE ROTOR USES BLADES, PROCEED AS FOLLOWS:
	Unscrew the nut D, pick up the knives C and remove the screw V (Figure 44) taking care that the spacers and the bushing B do not fall to the ground. With the blades removed check the state of wear of the supports, in particular the ovalisation of the holes, of the square seat of the head of the screw and the device wear. If any of the described phenomena are present, contact the manufacturer and request further indications.  Figure 43
	Replace the new blades C placing them between the rotor supports, insert the new screw paying attention to match the square head of the screw with the square housing on the support.
	Mount the new nut and fasten it.
	After completing all the operations, turn the machine over once again, place it on the ground and repeat the connection and start-up procedure described in paragraphs 3.4. and 3.5.
 ATTENZIONE	Pay attention to the direction in which you assemble the tools. If they are mounted in the wrong direction they cannot cut.
 PERICOLO	If after replacing the tools, the vibrations persist, proceed with a new dynamic balancing of the rotor at a specialised workshop.
 ATTENZIONE	Periodically check the hammers screws and nuts fastening; if they are loose, the rotor may get damaged and dangerous ejections may occur.
	Our spare parts guarantee complete and correct use of your machine again.

4.2.6. SUPPORT SLIDES REPLACEMENT

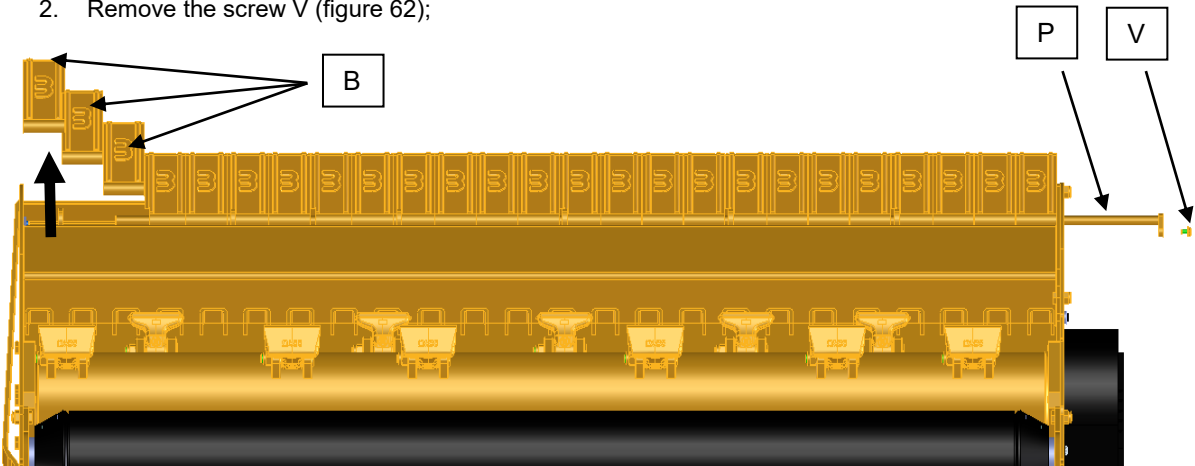
The machine is equipped with anti-wear slides that can be replaced in the following mode:

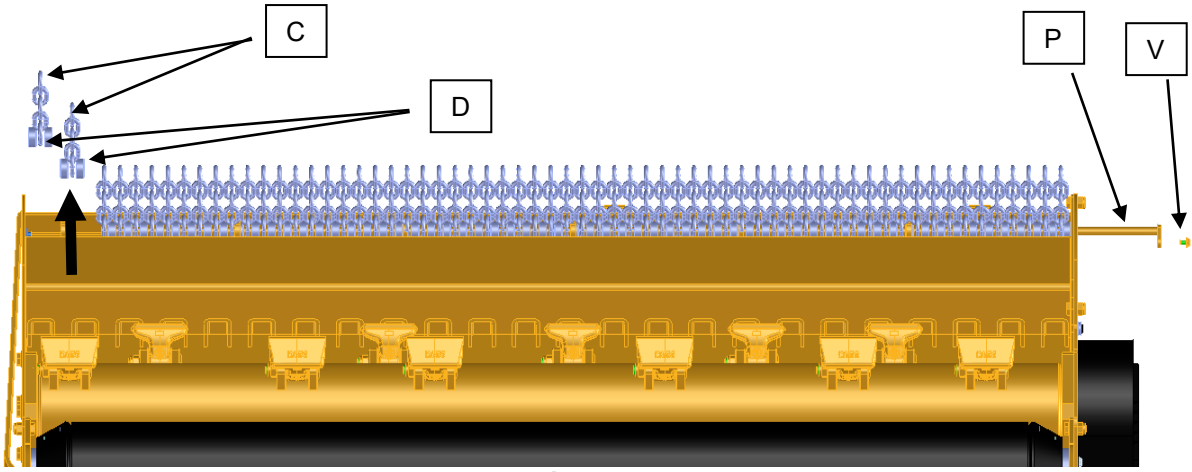
	1. Turn the machine over and place it on appropriate supports;
	In the workshop, use suitable equipment to handle and support the machine especially in terms of liftable and sustainable weight (see table 1 paragraph 1.5.3), in compliance with the Laws in force in the country of use.
	2. Unscrew the nuts D and remove the screws V as shown in figure 45;
	 Figure 44
	3. Replace the anti-wear slides SL both from the right and from the left side of the machine;
	4. Mount the screws V using the appropriate nuts D;
	5. After completing all the operations, turn the machine over once again, place it on the ground and repeat the connection and start-up procedure described in paragraphs 3.4. and 3.5.

4.2.7. REPLACEMENT OF THE FRONT GUARDS OF THE MACHINE

The machine is equipped with frontal guards consisting of panels or chains fastened to the machine crate.

FRONT GUARDS - PANELS	
	the panels must be properly stored. Operating without panels means operating without guards, and therefore the use of the machine in such conditions is considered improper. The manufacturer declines any responsibility for serious damages/accidents to persons, property and animals due to improper use of the machine.
	1. Hook the machine, turn it over and place it on appropriate supports;

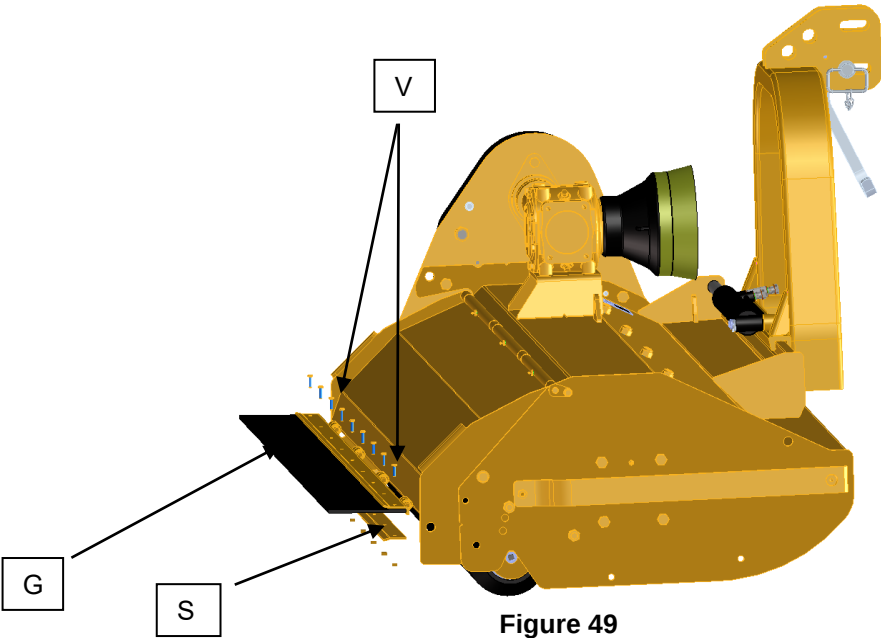
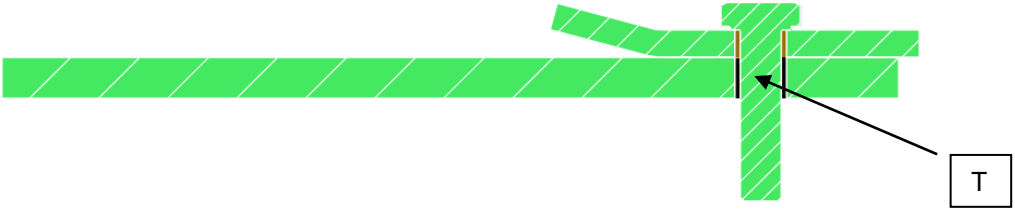
 PERICOLO	At the workshop, use appropriate equipment (hoists and beams) to move the machine especially regarding the maximum weight that can be lifted and sustained (see table 1.5.3. for data related to the machine) in compliance with the laws in force in the country of use.
	2. Remove the screw V (figure 62);  Figure 45
 ATTENZIONE	3. Gradually unscrew the front protection pin P, making sure that the panels B do not fall to the ground;
	4. Check for any damages; if any, proceed to immediate repair;
	5. Replace the panels (the first in the series must be notched), introducing them into the through-pin P; near the supports of the through-pin thread introduce the notched panels leaving no gap between these panels.  Figure 46
	6. Tighten the screw V.
	Reposition the machine on the ground and repeat the "Connection and start-up" procedure described in paragraphs 3.4. and 3.5.
	Our spare parts guarantee complete and correct use of your machine again.

FRONT GUARDS - CHAINS	
 PERICOLO	The panels must be properly stored. Operating without chains means operating without guards, and therefore the use of the machine in such conditions is considered improper. The manufacturer declines any responsibility for serious damages/accidents to persons, property and animals due to improper use of the machine.
	1. Hook the machine, turn it over and place it on appropriate supports;
 PERICOLO	At the workshop, use appropriate equipment (hoists and beams) to 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 screw V (figure 48);  Figure 47
 ATTENZIONE	3. Gradually unscrew the front protection pin P, making sure that the chains C and the spacers D do not fall to the ground;
	4. Check for any damages; if any, proceed to immediate repair;
	5. Replace the chains A and spacers D, inserting the inside the through-axe pin P; Respect the order of the chains and spacers assembly operations as indicated in figure 49.  Figure 48
	6. Tighten the screw V.

	Reposition the machine on the ground and repeat the connection and start-up procedure described in paragraphs 3.4. and 3.5.
	Our spare parts guarantee complete and correct use of your machine again.

4.2.8. REPLACEMENT OF THE REAR TYRE

The machine has a rear guard consisting of a rubber fabric sheet fixed on a suitable support by means of bolts.

 PERICOLO	In the workshop, use suitable equipment to handle and support the machine especially in terms of liftable and sustainable weight (see table 1 paragraph 1.5.3), in compliance with the Laws in force in the country of use.
	1. Disconnect the machine from the tractor;
	2. Unscrew the screws V as in figure 50, ensuring that the rubber fabric sheet G and the support S do not fall to the ground;
 Figure 49	
	3. Check for any damage to the support S which must be immediately repaired to restore the original state;
	4. Replace the rubber fabric sheet G;
	5. Support the new rubber fabric sheet G in support S, taking care to arrange it well in the housing S. Pierce the rubber at the holes T (figure 51);
 Figure 50	
	6. Place the rubber fabric sheet with the respective support at the rear of the machine;
	7. Tighten the screws V;

- | | |
|--|---|
| | 8. Once all the operations have been finished, repeat the procedure of "Connection and Start up of the machine" described in paragraph 3.4. to 3.5. |
|--|---|

4.2.9. CLEANING THE MACHINE

Periodically clean the machine using water under pressure, paying particular attention to any flammable residues. Ensure that the hot parts of the machine are free of straw, hay or residues of flammable materials.

4.3. STORAGE - WINTERING

If the machine is immobilised for long periods, store it in a place sheltered from the elements and protect it from damage.

Before any garaging, it is good practice to operate as follows:

- Free the rotor and the tools from shredder residues
- Clean the machine thoroughly
- 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.



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



ATTENZIONE

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.

4.4. SCRAPPING



ATTENZIONE

If the machine is scrapped, it must be disposed of in the appropriate waste sites in accordance with the laws in force in the country of use.

Before scrapping, separate the plastic and rubber parts, electrical and electronic parts (if present).

Recover any used oil and discard at the appropriate collection centres.

Parts consisting only of plastic, aluminium or steel may be recycled if collected by the appropriate centres.

4.5. SCHEDULED MAINTENANCE TABLE

Description	Controls
GENERAL MACHINE CHECKS	
Rotor greasing	Every 8 working hours
Roll greasing	Every 8 working hours
Tiller greasing	Every 8 working hours
Automatic belt tensioner greasing	Every 8 working hours
Greasing mechanical movement	Every 8 working hours
Hood hinge greasing	Every 8 working hours
Greasing steering wheels optional	Every 8 working hours
Check machine bolt tightness	After the first 4 hours and then every 50 hours
Check belts tensioning	After the first 4 hours and then every 50 hours
Check wear and fixing of tools	Before every job
Replace tools, screws and nuts	Every 200 operating hours or when damaged or no longer sharp
Replace transmission belts	Every 400 hours or when too worn
Replace pulleys	Every 400 hours or when too worn
Rotor balancing	Every partial or total replacement of the tools
Support slides replacement	Every 400 hours or when too worn
Check guards integrity	Every machine start-up. Restore the guards if worn and/or damaged.
Check pictograms	Every machine start-up. Restore if worn and/or damaged.
HYDRAULIC SYSTEM	
Check tightness of hydraulic hoses	At every start-up and every seepage of liquid
Check the hydraulic hoses	Check at every start-up. Replace immediately in the event of damage, seepage

4.6. TROUBLESHOOTING TABLE

ANOMALY	CAUSE	SOLUTION
Uneven 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 tension, the oil flow rate and the machine feed pressure - Replace the roll support - Replace the slides; - Make more working passages
Premature wear of the tools	- Stony/sandy land - 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
Excessive heating of the gearbox	- Mulcher oil level too low - Oil finished - Constrictions on the machine feed lines - Excessive amount of material to be processed; - Mulcher oil cooling system too small	- Add more oil in the mulcher - Replace oil - Remove the quick couplings. - Make more passages 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 bearings	- The machine frame is folded - No bearings lubrication - 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
Rotor does not turn	- Foreign body stuck - Breakage of the bearing - Breakage of the gearbox - Breakage of the transmission - Breakage of the belts - Breakage of the rotor shaft - Disconnected hydraulic tubes - fault at the mulcher supply system	- Consult the "machine clogging" procedure - Seals and bearings replacement - Gearbox replacement - Transmission replacement - Belts replacement - Rotor replacement - Properly connect the hydraulic tubes - Contact the mulcher mechanic

Sealing rings broken/worn	• Excessive lubrication • High rotor rotation speed • Incorrect seals assembly	• Change the seal rings • Check the machine adjustment • Ask the manufacturer for further information
Chassis broken/unwelded	• Sheet steel worn • Excessively stressed frame and crushed to the ground • Unbalanced rotor	• Change the frame; • Change the frame; • Balance the rotor
Rear supporting roll locked	• Broken supports • Missed greasing • Folded support roll • Wet ground • Material encrusted on the supports	• Supports replacement • Grease • Replace the support roll • Avoid working in unfavourable working conditions • Clean the support lubricate
The rotor vibrates	• The rotor is unbalanced; • The tools are worn/broken, • Folded rotor	• Balancing in specialised workshop • Replace the worn and/ or deteriorated and/or missing tools • Replace the rotor

5. GENERAL CONDITIONS

5.1. SPARE PARTS

Repairs and replacements must be performed using original spare parts, which must be requested from the Dealer. Please note that the presence of spare parts should be properly accompanied by the following indications:

- machine type;
- serial number;
- Spare part code that can be found in the Spare Parts Catalogue.

Since this is a particular part of a main group (rotor, multiplier unit, guards), it will be necessary to also specify the model and the serial number of the group.

5.2. WARRANTY

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

CONDITIONS OF WARRANTY:

- The manufacturer ensures 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 tax 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. Shipping and labour costs shall in any case be charged to 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 damages to the machine 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 malfunction can be used as a pretext for delaying 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.

5.3. NOTES

[illegible]



BERTI[®] MACCHINE AGRICOLE S.p.A.

Via Musi, 1/ A - 3

37042 Caldiero (Verona) - Italy

Tel. +39.045.6139711 - Fax +39.045.6150251

www.bertima.it - info@bertima.it

