

INSTRUCTION MANUAL

MULCHER

Trademark:
Models:

BERTI Machine Agricole
TFB/Y – TFB/C



📖 Before using the machine, carefully read this Manual 📖

ORIGINAL VERSION

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INTRODUCTION

This instruction manual describes the operating mode and contains all instructions necessary to properly use and maintain the mulcher as well as performing ordinary and periodical maintenance operations that will be referred to from now on as machine.

To facilitate consultation, this instruction manual is divided into clearly identifiable chapters.

The indications contained in this manual are intended for professional users, with specific knowledge regarding the methods of use of the machine, that are authorised, trained and properly educated.

The use of original spare parts and accessories is recommended. 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. The manual must always accompany the machine, even if the latter is sold. If the manual is damaged or lost, a copy should be requested to the Manufacturer of the machine or to the owner. This manual is an integral part of the machine.

 ATTENZIONE	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 always be kept in an accessible place, so that it can be immediately consulted in case of need.
 ATTENZIONE	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 personnel	Persons purposely trained and enabled to carry out maintenance or repair interventions requiring a particular knowledge of the machine, of its functioning, of the relative safety devices and their intervention modalities.
Safety Personnel	Personnel in charge of making sure that no persons are inside the machine operating area.
Manufacturer	Company that produces the → Berti Macchine Agricole S.p.A. mulcher
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 3 mulcher 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 an 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 a 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.
	PLEASE NOTE

1. INFORMATIONS REGARDING THE INSTRUCTION MANUAL

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

	The presence of this symbol, in 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, at any time, to apply modifications to the machinery for technical or commercial reasons. Such modifications do not oblige the Manufacturer to intervene on machines sold up until that moment, nor to consider this publication inadequate.

Any integration that the Manufacturer will consider opportune to supply later on must be preserved together with the manual and be considered an integral part of the same.

1.2. COPYRIGHTS

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

1.3. MACHINE IDENTIFICATION PLATE AND CE MARKING

Every machine is equipped with an identification plate, containing the following data:

- CE Marking;
- Country of fabrication;
- Manufacturer's name and address;
- Model and type;
- Serial number;
- Year of production;
- Weight
- Version.

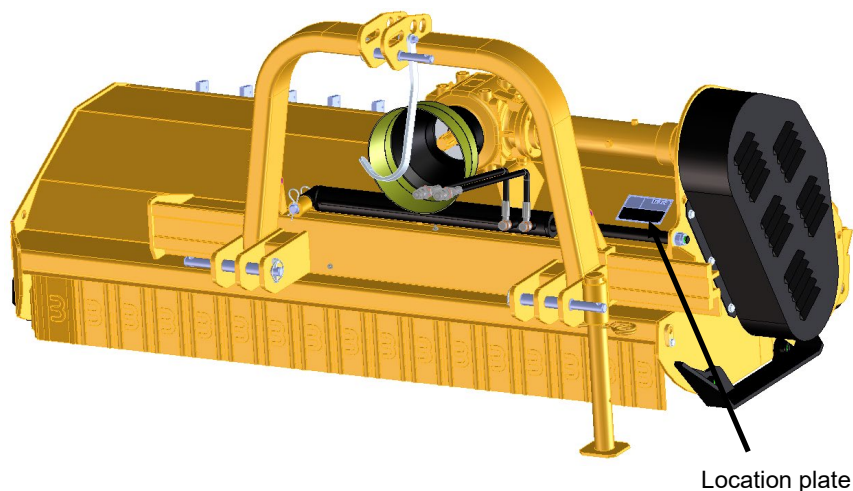
The machine is supplied as standard with:

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



Figure 1

TFB/Y



TFB/C

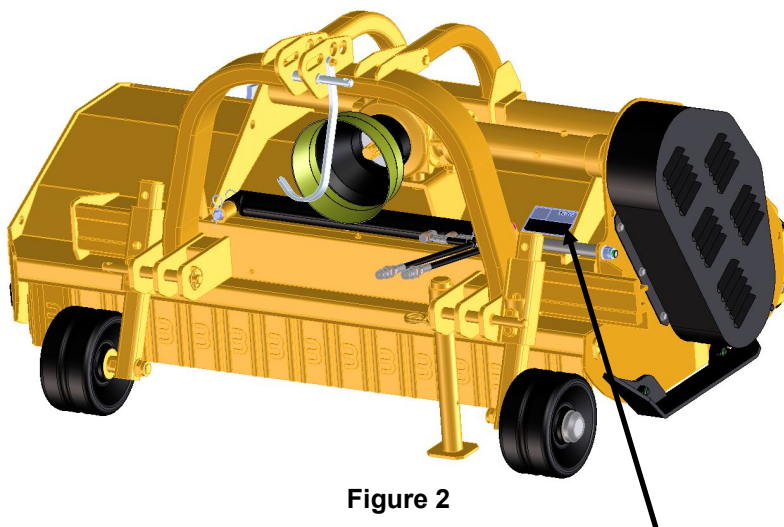


Figure 2

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@berti.it - www.berti.it

CE

Dichiarazione CE di Conformità ai sensi della direttiva 2006/42/CE e 2014/30/EU (*)
EC Certificate of Conformity - conforming to EEC Directives 2006/42/CE and 2014/30/EU (*)

La Ditta / We

BERTI Macchine Agricole S.p.A. Via Musi 1/A-3
37042 CALDIERO - VERONA - ITALY

dichiara sotto la propria responsabilità, in 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 Direttiva 2006/42/CE e 2014/30/EU (*). Per la vendita delle macchine sono state consultate le seguenti norme armonizzate:

declare in sole responsibility, that the product to which this certificate applies, conforms to the basic safety and health requirements of EEC Directives 2006/42/CE and 2014/30/EU (*), and according to the European harmonized standards:

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

Nonché le seguenti specifiche tecniche:
And the following technical specifications:

ISO 11694:1995

(*)
Valido solo se la macchina è dotata di dispositivi e accessori soggetti alle direttive/norme armonizzate/specifiche tecniche ivi indicate.
Valid only if the machine is equipped with devices and accessories that are subjected to the directives/harmonized norms/technical terms here indicated.

MODELLO - TYPE

MATRICOLO - SERIAL NUMBER

Periodo del fascicolo tecnico Technical file repository

per la società / for the Company
für die Firma / pour la société

BERTI Macchine Agricole S.p.A.
BERTI MACCHINE AGRICOLE S.p.A.
Via Musi 1/A-3 - 37042 CALDIERO (Verona) - ITALY
Caldiero, 03/06/2016

BERTI Macchine Agricole S.p.A.
BERTI MACCHINE AGRICOLE S.p.A.
Amministratore Unico

La presente certificazione è parte integrante della macchina
This EC certificate is an integral part of the unit

Cod. Fisc. e Reg. Impr. di VR n° 0006150234 - P.IVA : 0006150234 - R.E.A. VR 84549 - Cap. Soc. € 151.704,00 I.v.
Società soggetta a direzione e coordinamento da parte della società H&B Holding Berti S.r.l. di VR0306650241

P. PROG. M0501

1.5. MACHINE INFORMATION

1.5.1. SPECIFIED USE

The mulcher for vineyard and orchard model TFB/Y and TFB/C has been designed to be used exclusively in the agricultural sector, for mulching grass, pruning and woody material up to a diameter of about 8 cm. according to the type of tool used.

The machine is 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 machine is not suitable to be used in other sectors than in agriculture.

NEVER USE THE MACHINE FOR DIFFERENT PURPOSES 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.



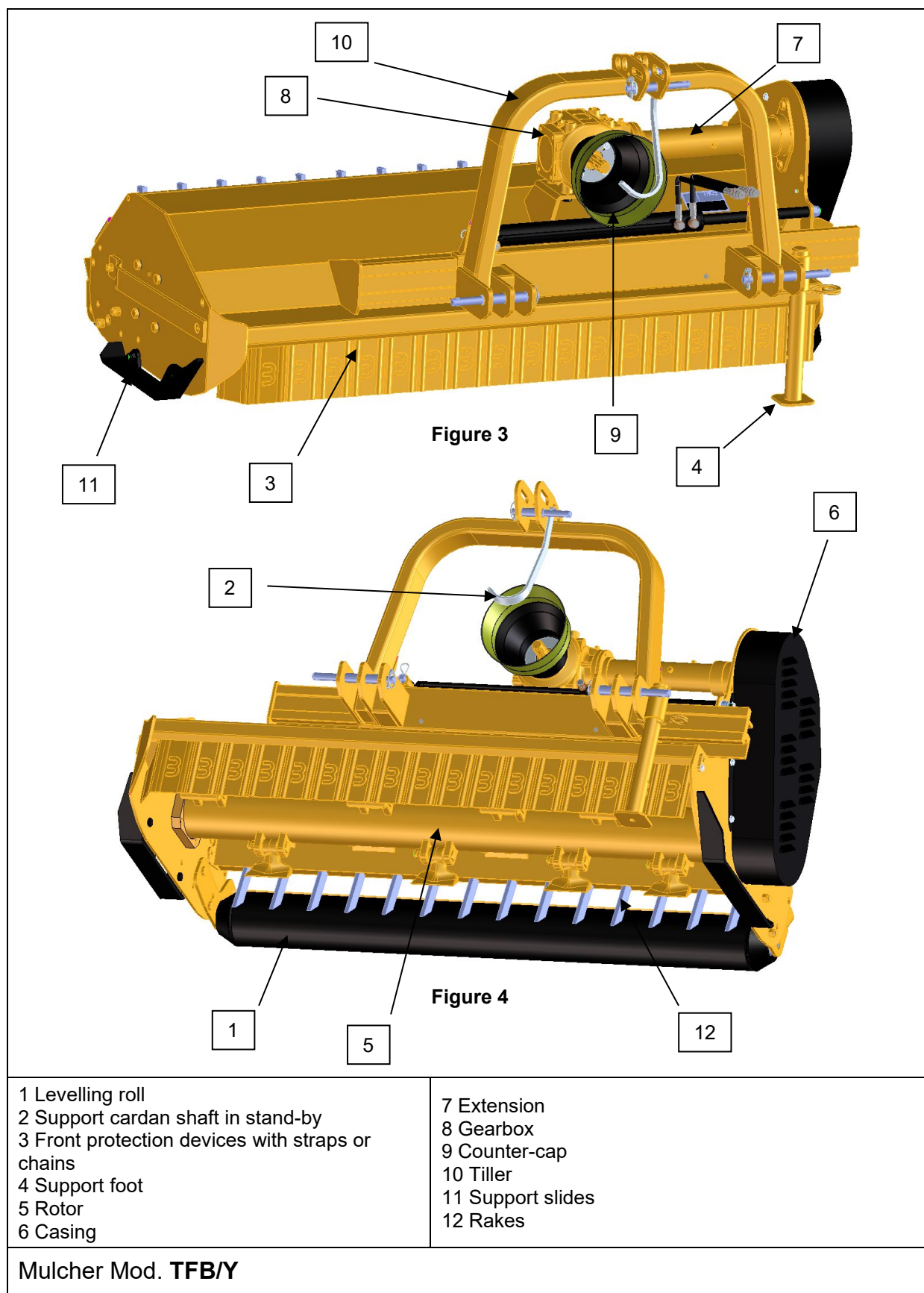
Any other use of the machine (different from the one indicated in the instruction manual) should be considered unauthorised and therefore dangerous.

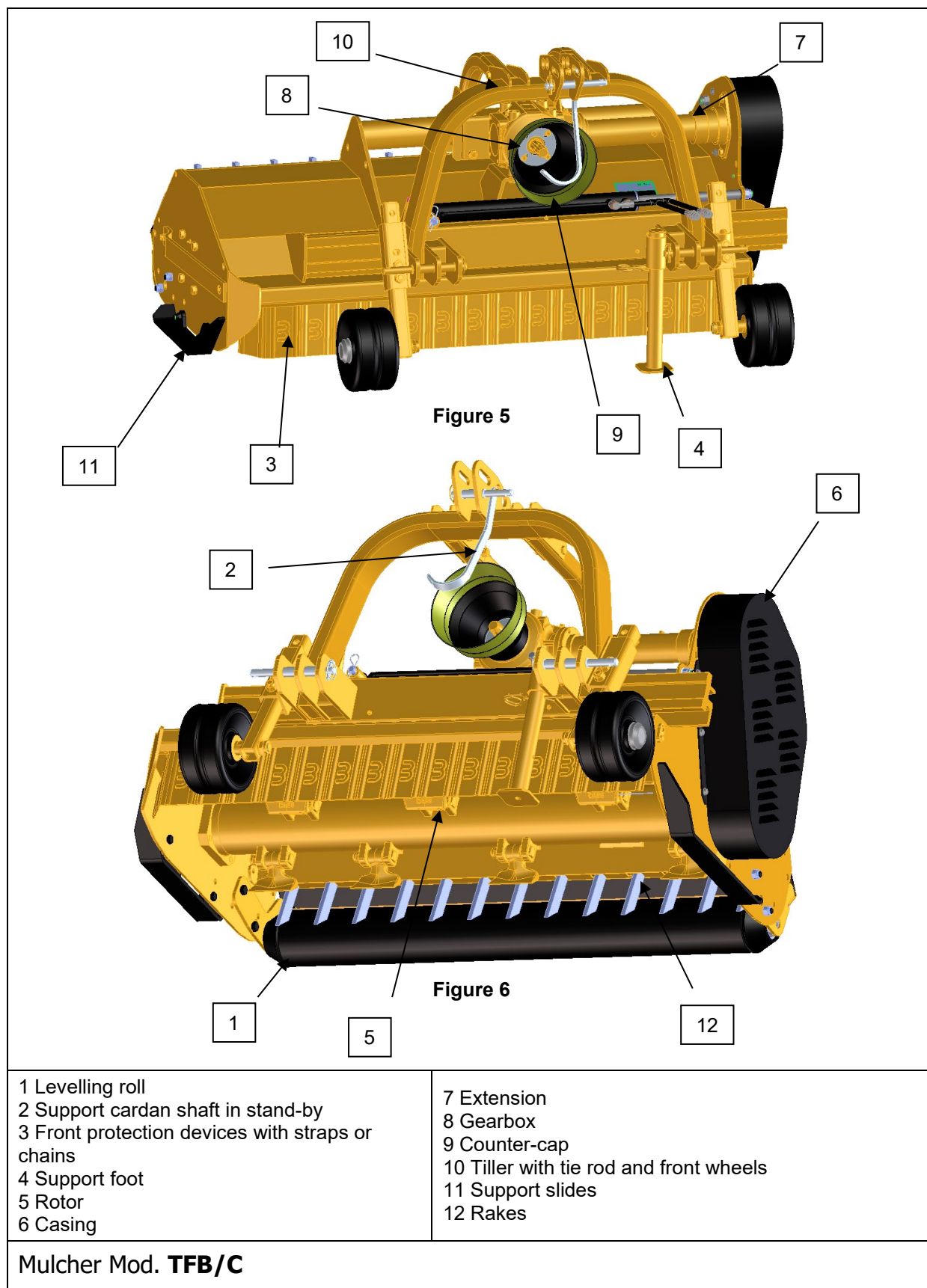
1.5.2. DESCRIPTION

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

The mulcher is essentially made up of:

- A frame;
- A three-points moveable connection system;
- A tiller of category 1-2;
- 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.





1.5.3. TECHNICAL DATA

The machine operates behind the tractor and can be applied on tractors with power between 29 and 81 kW (40 - 110 HP). The drawing and the tables below, indicate the machine operation field.

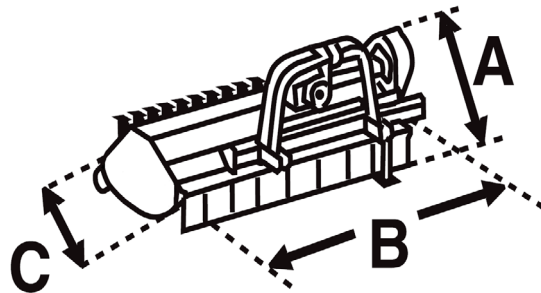


Figure 7

Mod.											
	cm	Min	Max	mm	n°	n°	n°	PTO	A B C cm	min	max
TFB/Y 120	120	60	110	685 515 315 885	12	36	4	540 (1000)	100 140 120	560	720
TFB/Y 140	140	60	110	875 525 355 1045	12	36	4	540 (1000)	100 160 120	610	770
TFB/Y 160	160	60	110	875 725 355 1245	14	42	4	540 (1000)	100 180 120	660	840
TFB/Y 180	180	60	110	875 925 355 1445	16	48	4	540 (1000)	100 200 120	700	890
TFB/Y 200	200	80	110	875 1125 355 1645	18	54	4	540 (1000)	100 220 120	740	940
TFB/Y 220	220	80	110	1040 1160 520 1680	20	60	4	540 (1000)	100 240 120	790	990
TFB/Y 250	250	80	110	1040 1460 520 1980	22	66	5	540 (1000)	100 270 120	890	1100

Table 1

Attacco centrale
Centre mounted linkage
Mittiger Anbau
Attelage axial.

Mod.	
	mm
TFB/Y 160	1048 554 524 1076
TFB/Y 180	1048 754 524 1276
TFB/Y 200	1216 784 694 1306
TFB/Y 220	1326 874 804 1396
TFB/Y 250	1560 940 1040 1460

Mod.											
	cm	Min	Max	mm	n°	n°	n°	PTO	A B C cm	min	
TFB/C 140	140	60	110	875 525 355 1045	12	36	4	540 (1000)	100 160 130	650	810
TFB/C 160	160	60	110	875 725 355 1245	14	42	4	540 (1000)	100 180 130	700	880
TFB/C 180	180	60	110	875 925 355 1445	16	48	4	540 (1000)	100 200 130	740	930
TFB/C 200	200	80	110	875 1125 355 1645	18	54	4	540 (1000)	100 220 130	780	980
TFB/C 220	220	80	110	1040 1160 520 1680	20	60	4	540 (1000)	100 240 130	830	1030
TFB/C 250	250	80	110	1040 1460 520 1980	22	66	5	540 (1000)	100 270 130	930	1150

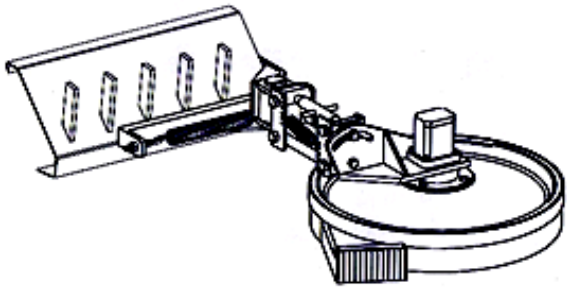
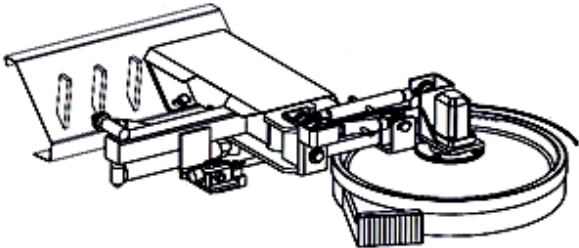
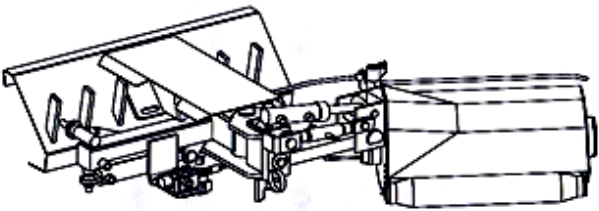
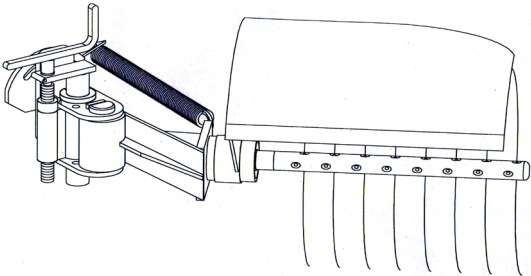
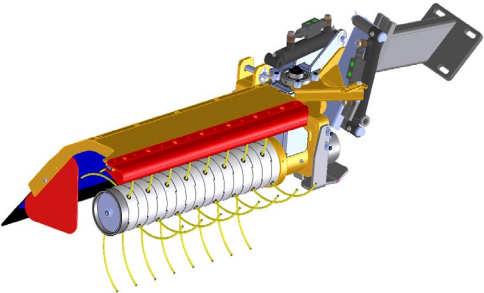
Table 2

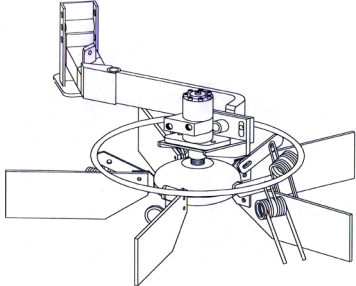
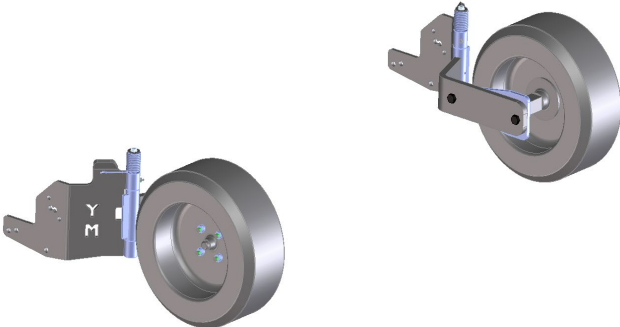
Attacco centrale
Centre mounted linkage
Mittiger Anbau
Attelage axial.

Mod.	
	mm
TFB/C 160	1046 554 524 1076
TFB/C 180	1046 754 524 1276
TFB/C 200	1216 784 694 1306
TFB/C 220	1326 874 804 1396
TFB/C 250	1560 940 1040 1460

1.5.4. ACCESSORIES

The machine can be equipped with the following accessories:

Mechanical retraction inter row probe	
Mechanical retraction inter row probe	
Inter row mulcher SPEEDY	
Inter row weeder ECOLOGY	
Inter row weeder ECOSPRINT	

ROTO WINDROWER	
STEERING WHEELS	

1.6. MATERIALS THROW



During some of the operations performed with the machine, you may check the materials projection; 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. Danger from thrown objects!
 PERICOLO	The machine must be used exclusively by authorised, instructed and trained operators. The operator, besides having read and understood the instructions contained in this manual, must also be sufficiently prepared on the proper use of the machine and must have a driving licence and must be an adult. The operator must contact the manufacturer if in doubt regarding use of the machine or interpretation of this manual.
 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 should be 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. The filters of the cabin ventilation system should be periodically checked and operators should always wear proper protection devices for the respiratory system, such as anti-dust masks.
 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.

	It is strictly forbidden to use the machine for transporting persons, animals or objects.
	It is strictly forbidden to use the flexible tubes as supports; these components are mobile and do not offer proper support.
	The operating area must be thoroughly inspected before using the machine, paying attention to remove any stones, iron residues, steel cables, manholes, strains and all those materials and obstacles without any limitation which may constitute a source of danger, accidents and serious damage to the user, people, animals and things.
	The operator must make sure that no person or animal stops within the radius of action of the same during machine functioning. The user is responsible of stopping the machine immediately and clearing the machine operating area from people and animals. Never activate the machine near persons and animals standing or transiting within the radius of action of the machine.
	If the machine is used in public areas and on roads, take all necessary precautions for the safety of persons, animals and property, for example, using safety personnel, warning signs, placing them at the ends of the machine operating area, according to the laws in force in the country of use.
	Never work in areas with strong counter slope, on slippery surfaces and in areas / zones that reduce the adhesion of the tractor to the ground. Pay utmost attention to changes of direction.
	Use the machine during the day and under conditions of perfect visibility.
	It is strictly forbidden to operate in adverse environmental conditions, for example during storms, snows, in windy, rainy or cloudy days, etc.
	Avoid working on muddy, sandy or soft terrain.

 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 proper conditions, readable and clean. If the pictograms have deteriorated, they must be replaced with other original versions requested from the manufacturer and placed in the position indicated by the use and instruction manual (paragraph 2.3.2). If necessary, clean with a damp cloth.
 ATTENZIONE	The signs applied to the machine provide a series of important indications: their compliance will determine your safety.
 PERICOLO	It is strictly forbidden to perform any modification that may alter the original condition of the machine.
 PERICOLO	Any arbitrary modification made on this machine lifts the manufacturer from any responsibility for damage or injuries that could result to operators, third parties or to objects.
	Keep the machine free from foreign materials (debris, tools, other items), which may damage the operation or the operator.



The following paragraphs list other highly important safety standards. It is mandatory to read the entire instruction manual before using the machine.

2.2. FIRE-FIGHTING MEASURES

 ATTENZIONE	Keep an extinguisher of proper capacity in the tractor 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 perform any welding near containers, tubes, tanks, electric wires, or flammable materials in general.
 ATTENZIONE	In case of welding protect with appropriate screens the flammable parts.

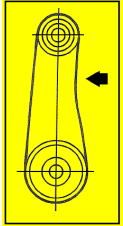
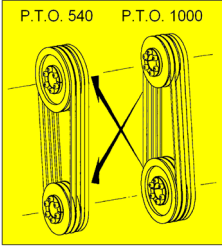
2.3. SAFETY SIGNS

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

2.3.1.DESCRPTION 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 consult chapter 3 - 4 in 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 a safe distance.
	WARNING - DANGER of thrown objects. Keep a safe distance.

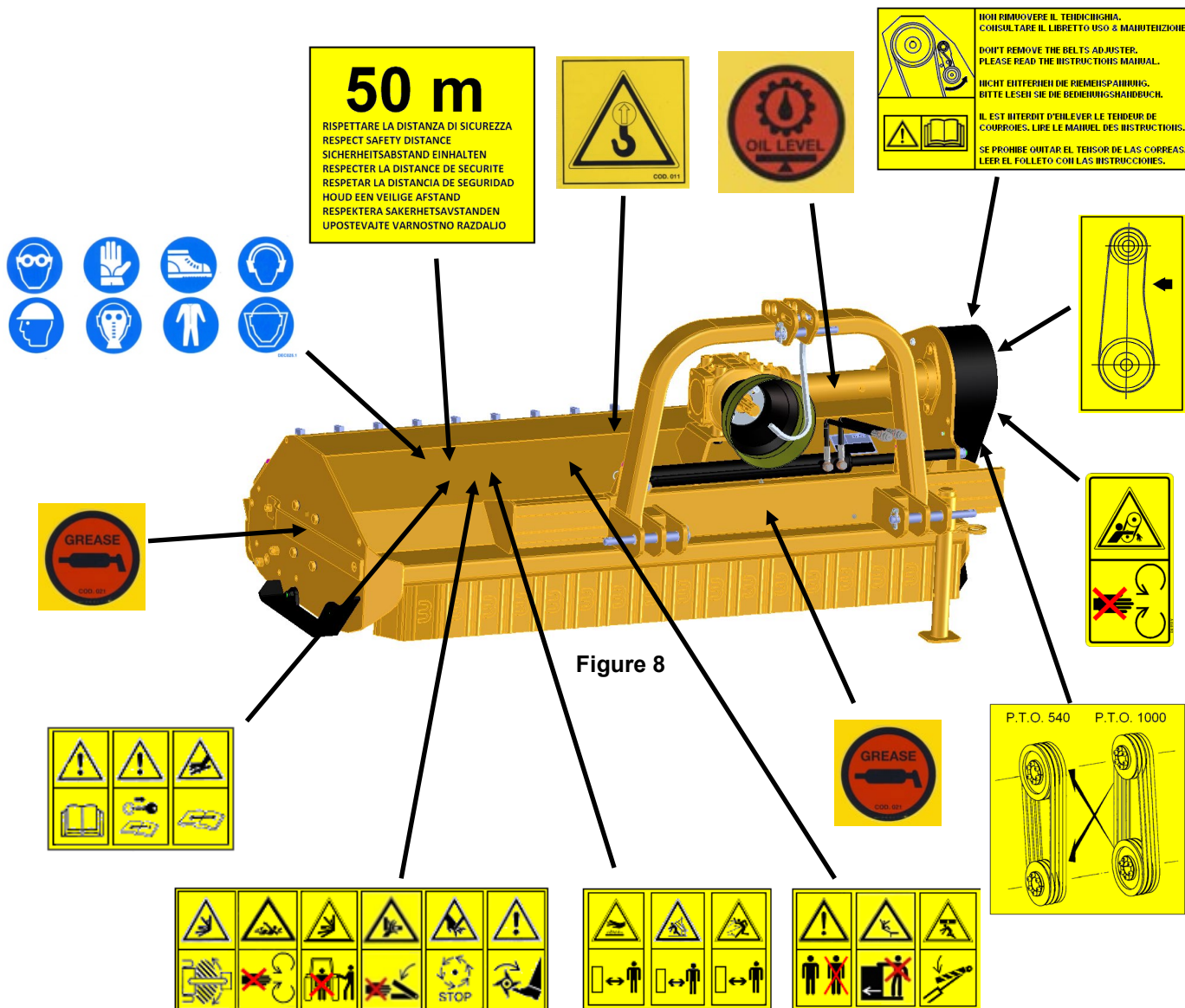
	ATTENTION: the foldable parts of the machine may fall.
	WARNING - DANGER of crushing. Do not stand between the tractor and the mulcher.
	WARNING - DANGER of coming into contact with moving elements. Do not place your hands and feet near the transmission belts.
	WARNING - DANGER of entanglement and pulling. Do not place hands and feet close to moving parts.
	WARNING - DANGER of burns. Keep 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.

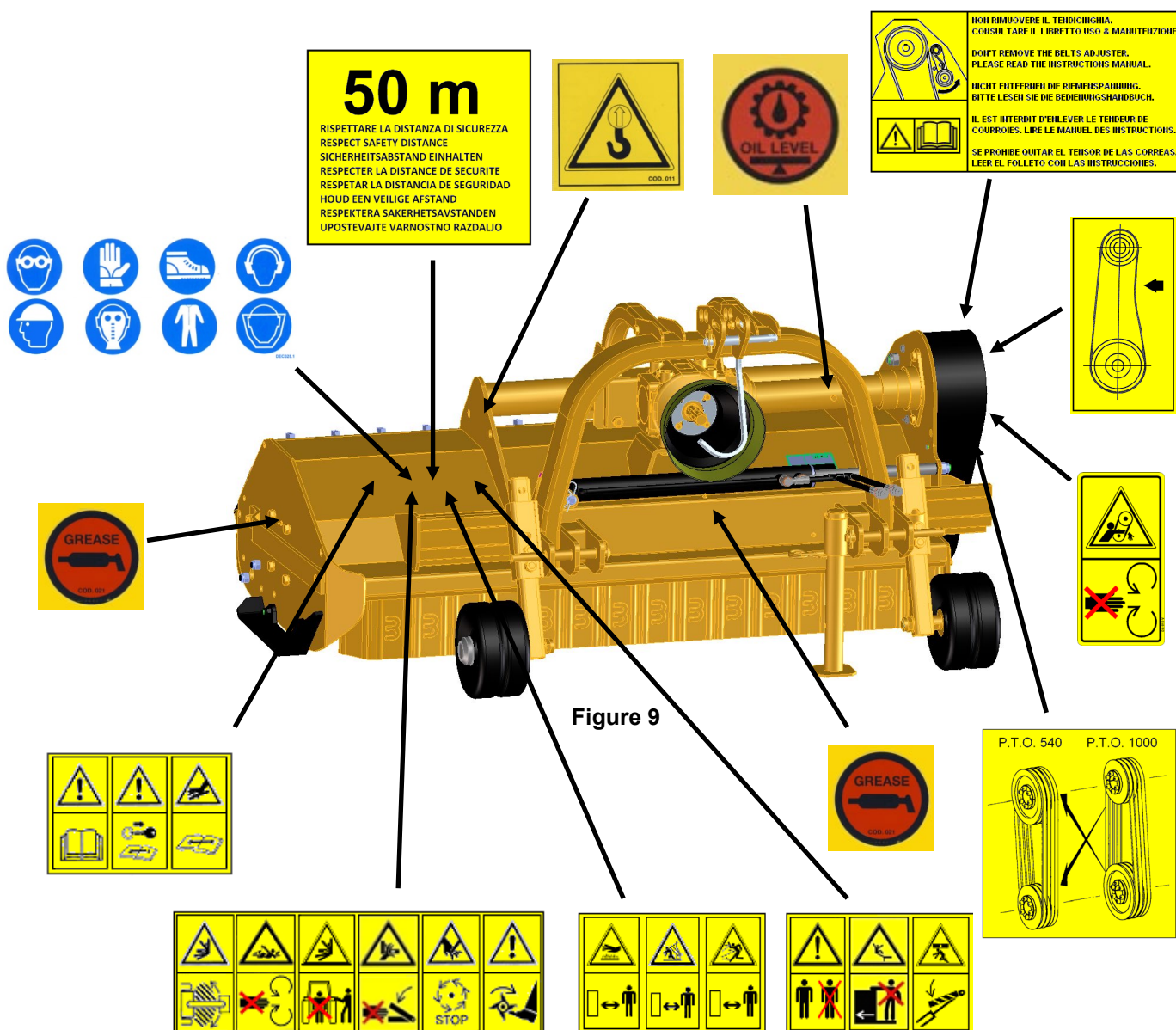
2.3.2. POSITION OF PICTOGRAMS ON THE MACHINE

The pictograms are inserted as indicated in diagram:

TFB/Y



TFB/C



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. Therefore the functions of the machine and the safety standards must be properly known.
 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 perfect working condition and must be repaired only with 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 7). Visually check the machine before handling it as to make sure that the unstable parts do not represent a danger.

 CAUTELA	Never lift or handle the machine anchoring 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.**

TFB/Y

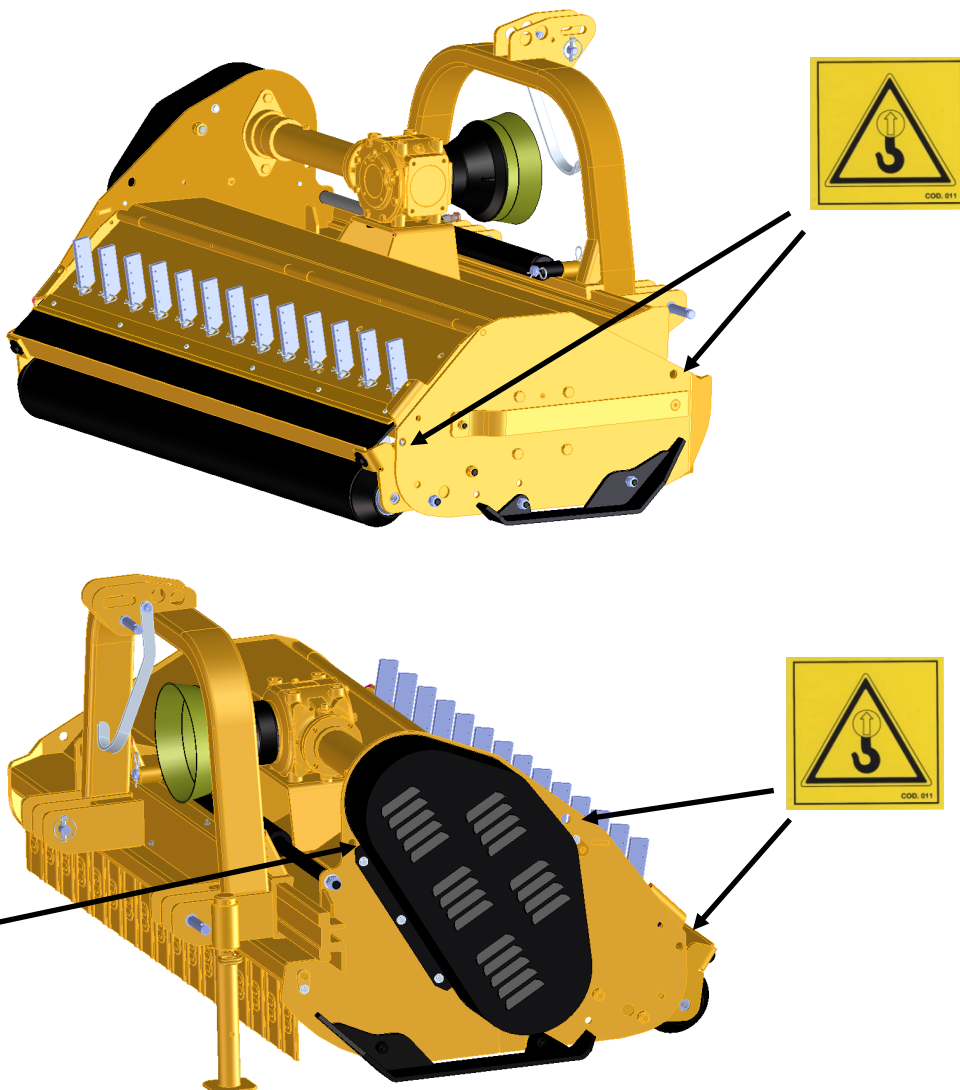
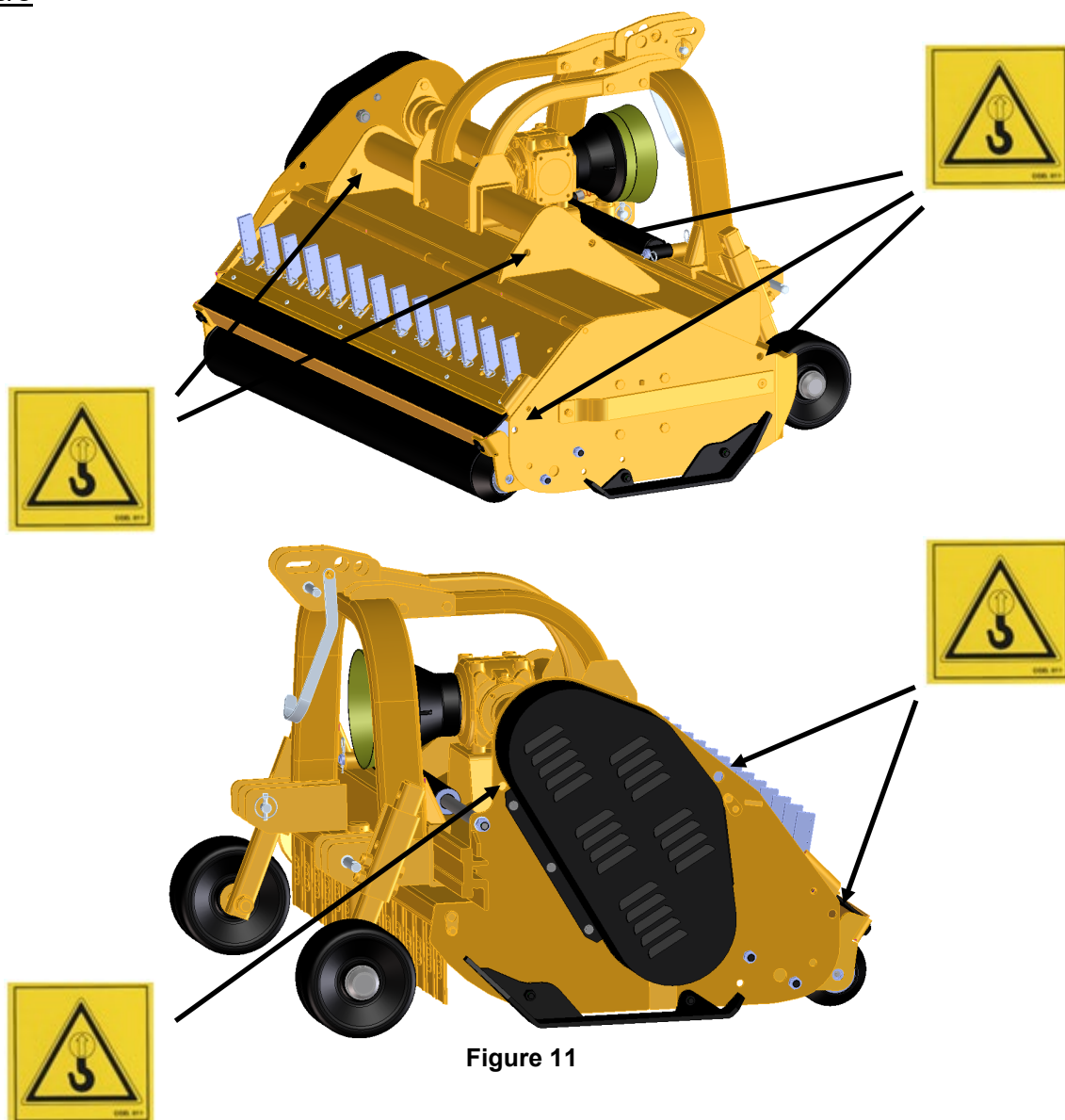


Figure 10

TFB/C

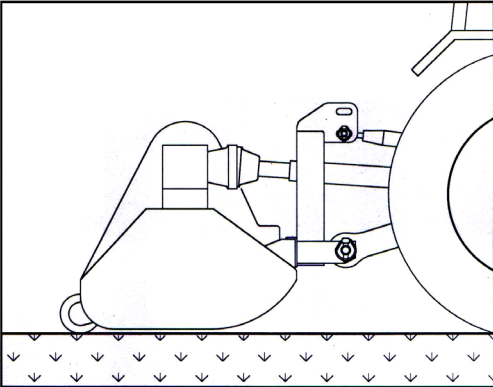


The machine is delivered fully assembled and in order to use it, you must simply connect it to the tractor.

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 entire and 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 12
 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.

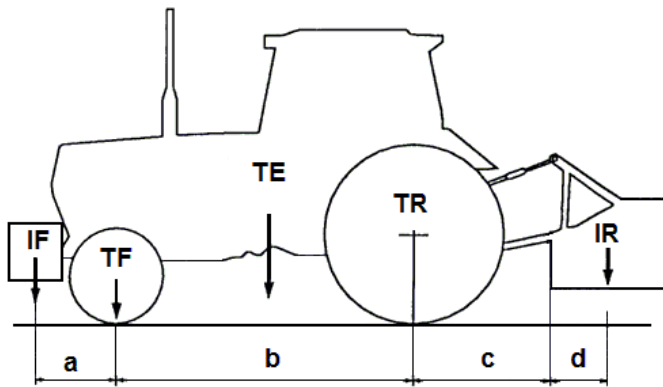


Figure 13

$$I_{F, \min} = \frac{(IR \times (c+d)) - (TF \times b) + (0,2 \times TE \times b)}{a + b}$$

TE = Weight of the tractor (empty)

TF = Front axle load (empty tractor)

TR = Rear axle load (empty tractor)

IR = Rear mulcher weight/rear ballast

IF = Front mulcher weight/front ballast

- a. 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 tractor's parallels
- d. Distance from the centre of the tractor's parallels' ball to the centre of gravity of the rear mulcher/rear ballast



Road transportation must be performed paying maximum attention in order to avoid putting the persons or other vehicles in danger.



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.



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 PTO driven at 1000 rpm, with suitable weight and power, compliant with the law requirements 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. 
	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);

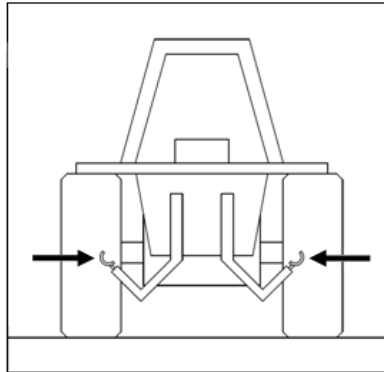


Figure 14

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);

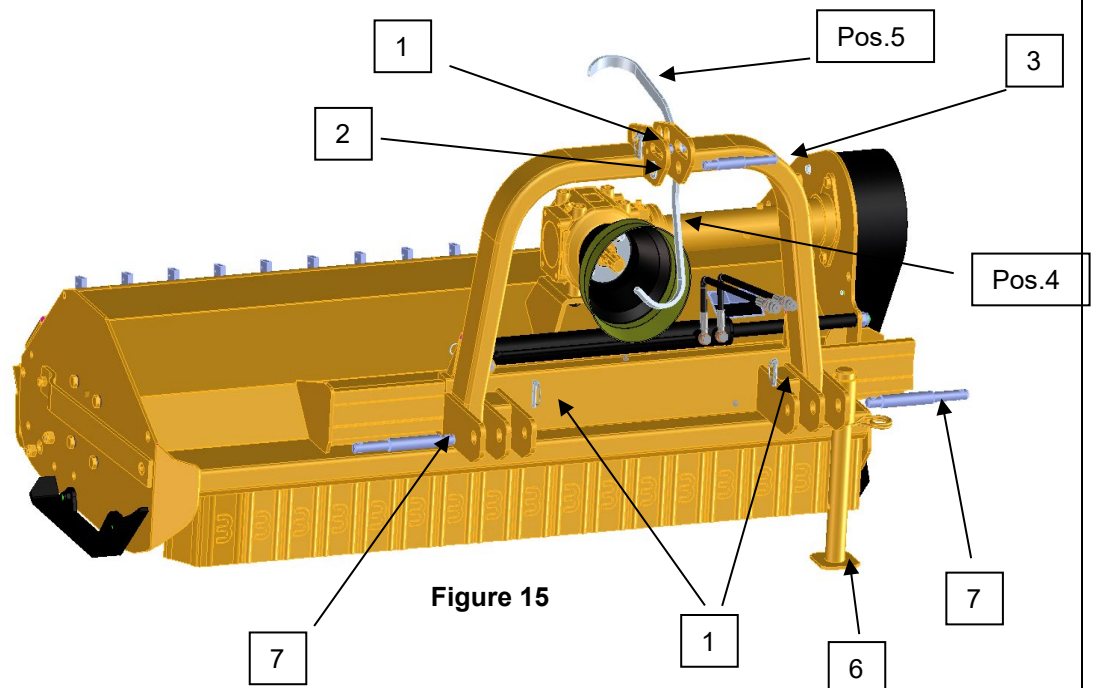
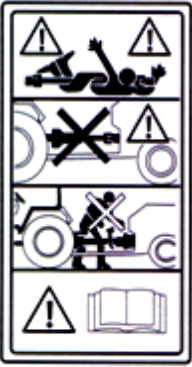
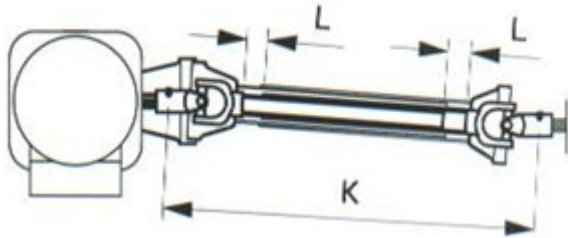
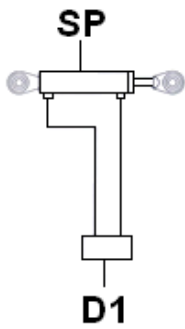


Figure 15

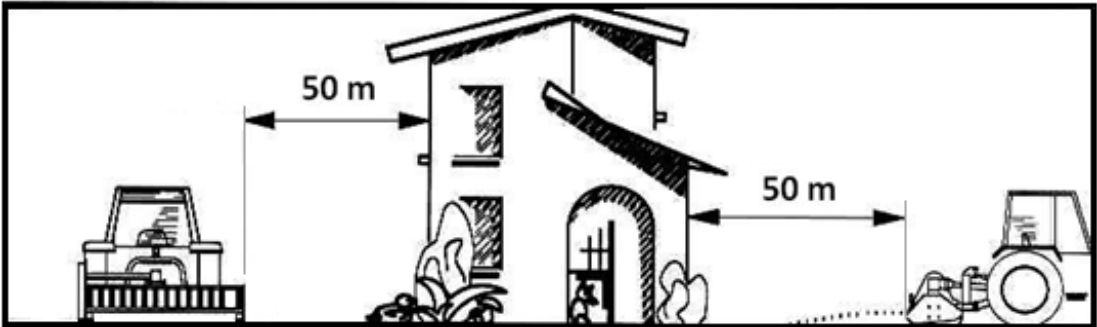
7. Block lifting bars of the tractor to prevent the machine oscillating laterally, compromising the transversal stability of the complex.
8. Insert the Cardan shaft onto the splined shaft of the machine, holding the safety pin pressed. Release the pin and retract with the Cardan until the pin itself engages in the relevant seat with an audible "click". If you do not hear the "click", 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.																																																						
 ATTENZIONE	<table><tr><th rowspan="2">Model</th><th colspan="2">Maximum absorbed power</th><th colspan="2">Power transmitted from the cardan shaft at 540 rpm</th></tr><tr><th>kw</th><th>HP</th><th>kw</th><th>HP</th></tr><tr><td>TFB/Y 100</td><td>18 – 22</td><td>25 – 30</td><td>29</td><td>40</td></tr><tr><td>TFB/Y 120</td><td>18 – 22</td><td>25 – 30</td><td>29</td><td>40</td></tr><tr><td>TFB/Y 140</td><td>18 – 22</td><td>25 – 30</td><td>29</td><td>40</td></tr><tr><td>TFB/Y 160</td><td>22 – 26</td><td>30 – 35</td><td>37</td><td>50</td></tr><tr><td>TFB/Y 180</td><td>26 – 29</td><td>35 – 40</td><td>37</td><td>50</td></tr><tr><td>TFB/Y 200</td><td>29 – 33</td><td>40 – 45</td><td>44</td><td>60</td></tr><tr><td>TFB/Y 220</td><td>33 – 37</td><td>45 – 50</td><td>44</td><td>60</td></tr><tr><td>TFB/Y 230</td><td>33 – 37</td><td>45 – 50</td><td>44</td><td>60</td></tr><tr><td>TFB/Y 250</td><td>37 – 48</td><td>50 – 65</td><td>44</td><td>60</td></tr></table> Table 3	Model	Maximum absorbed power		Power transmitted from the cardan shaft at 540 rpm		kw	HP	kw	HP	TFB/Y 100	18 – 22	25 – 30	29	40	TFB/Y 120	18 – 22	25 – 30	29	40	TFB/Y 140	18 – 22	25 – 30	29	40	TFB/Y 160	22 – 26	30 – 35	37	50	TFB/Y 180	26 – 29	35 – 40	37	50	TFB/Y 200	29 – 33	40 – 45	44	60	TFB/Y 220	33 – 37	45 – 50	44	60	TFB/Y 230	33 – 37	45 – 50	44	60	TFB/Y 250	37 – 48	50 – 65	44	60
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TFB/Y 180	26 – 29	35 – 40	37	50																																																			
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TFB/C 250	37 – 48	50 – 65	44	60																																																			
	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 16
	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 17
	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 an 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.
 ATTENZIONE	Check that all safety pins are properly inserted and that they are functioning correctly. Make sure the blocking devices have been inserted in the connection pin. Check that the quick couplings are inserted properly.
	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 18
	- 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 state, 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 worked 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 be used only for the intended purposes.

	Excessive speed stresses the mobile components of the machine, reducing their lifetime. In this case the amount of shredded material will be poor; it may cause the machine to throw large pieces of material that may put the operator in danger.
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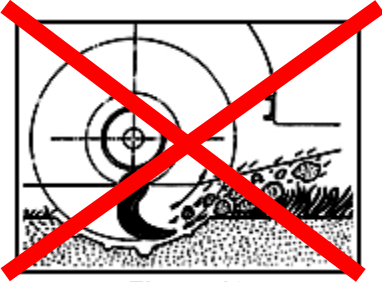
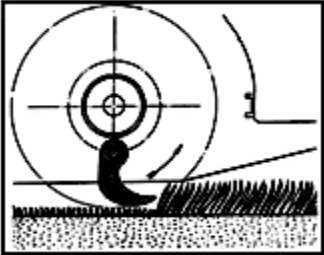
In the table below are indicated the recommended speeds that should be respected in order to obtain maximum performance and in particular:

TYPE OF MATERIAL	RECOMMENDED FORWARD SPEED (km/h)														
	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															

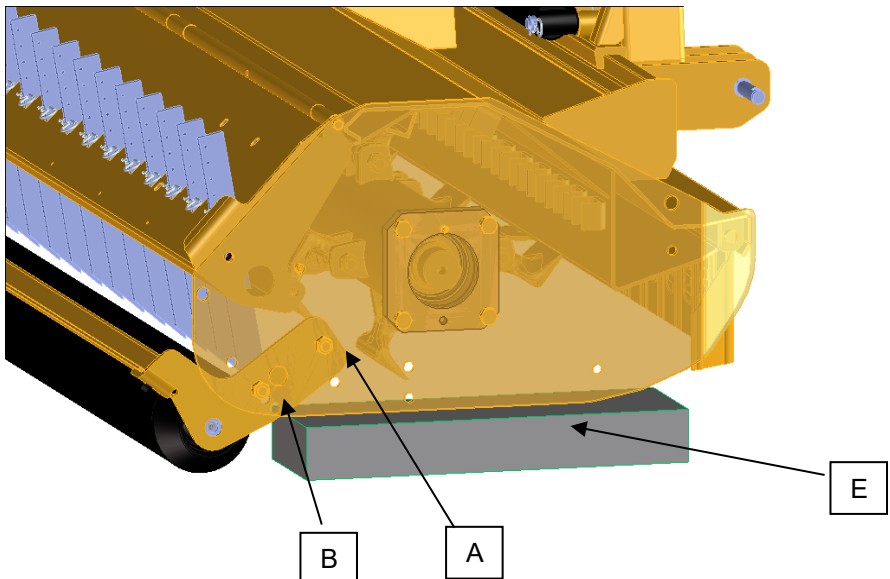
Table 5

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 19 NO  Figure 20 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; 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 

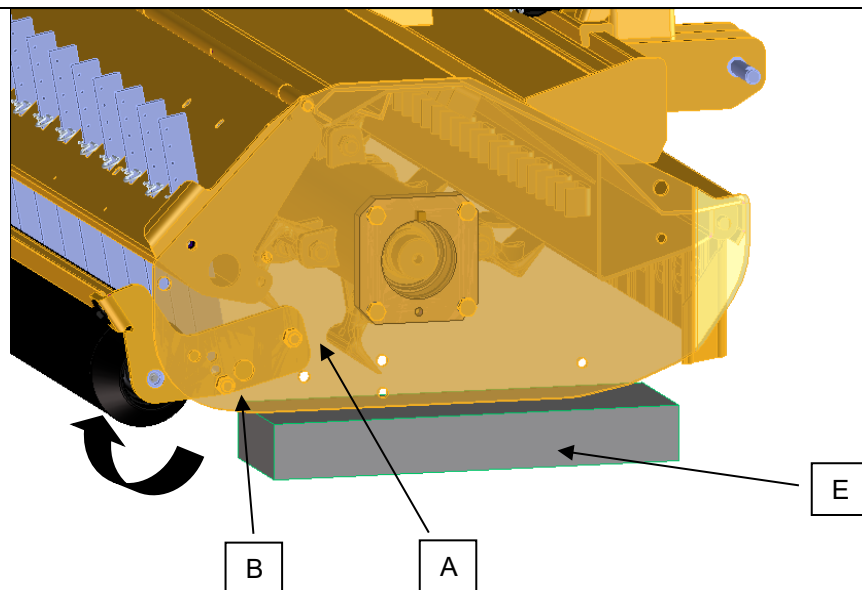


Figure 21



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 operate the machine near persons standing or transiting within range 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.

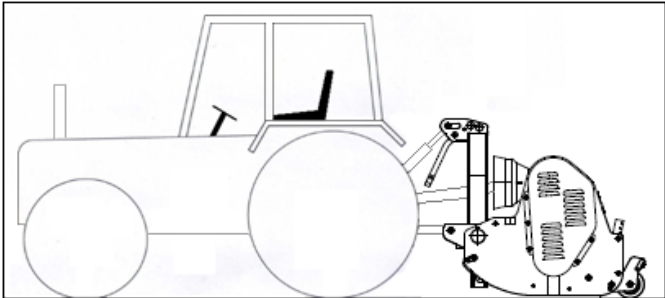
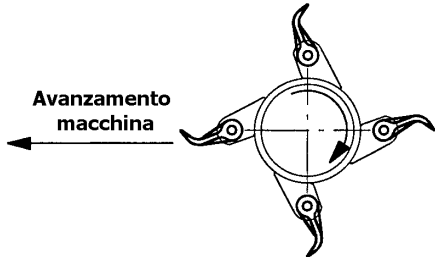
 ATTENZIONE	Never lean or press the rotor on logs, rocks because it could bend and then rotate unbalanced. Using the machine while damaged will affect its structural integrity due to unexpected and uncontrollable breakages.
 PERICOLO	Never use the machine on stones, especially if there is very dry grass 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
 PERICOLO	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.

 PERICOLO	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.
 ATTENZIONE	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.
	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.
	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;
	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 starting any maintenance, the following operations must be carried out:

	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 personnel must use all the safety devices and personal protection equipment (P.P.E.) during machine use, adjustment, repair and handling phases. 
 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 perform repairs of which you have no knowledge. Always follow the instructions. If they are missing, contact the manufacturer.
 ATTENZIONE	Do not use lifting points different from those prescribed.
 ATTENZIONE	Make sure that the chosen lifting device is suitable to carry out operations in compliance with the safety Standards in force in the country of use.

 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.

4.1. MACHINE HOT POINTS

Before any maintenance intervention, make sure that the temperature of the hot parts is below 60°C.
 Pay utmost 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 rules and maintenance schedules undermine the proper operation of the machine and its duration and thus voids the warranty.

Increase the frequency of the maintenances in heavy duty conditions (frequent start-ups and shut-downs, prolonged winter, etc.)

4.2.1. COUPLING TORQUES TABLES

Table tightening torques for steel screws 8.8

Coarse pitch screw	M8	M10	M12	M14	M16	M20	M24
Coupling torque Nm	25	49	86	135	210	410	710
Fine pitch screw	M8x1	M10x1.25	M12x1.25	M14x1.5	M16x1.5	M20x1.5	M24x2
Coupling torque Nm	27	52	95	150	225	460	780

Table tightening torques for steel screws 10.9

Coarse pitch screw	M8	M10	M12	M14	M16	M20	M24
Coupling torque Nm	35	69	120	190	295	580	1000
Fine pitch screw	M8x1	M10x1.25	M12x1.25	M14x1.5	M16x1.5	M20x1.5	M24x2
Coupling torque Nm	38	73	135	210	315	640	1100

4.2.2. GREASING

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

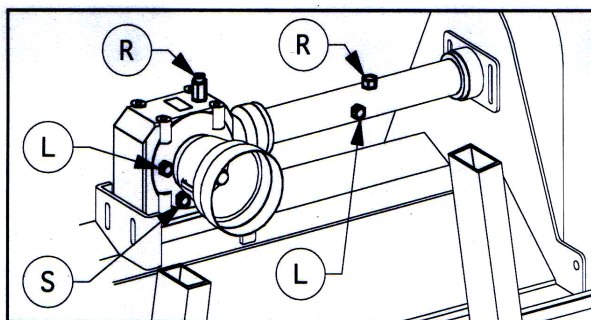


Figure 24

R: oil discharge hole
L: oil level hole
S: oil discharge hole

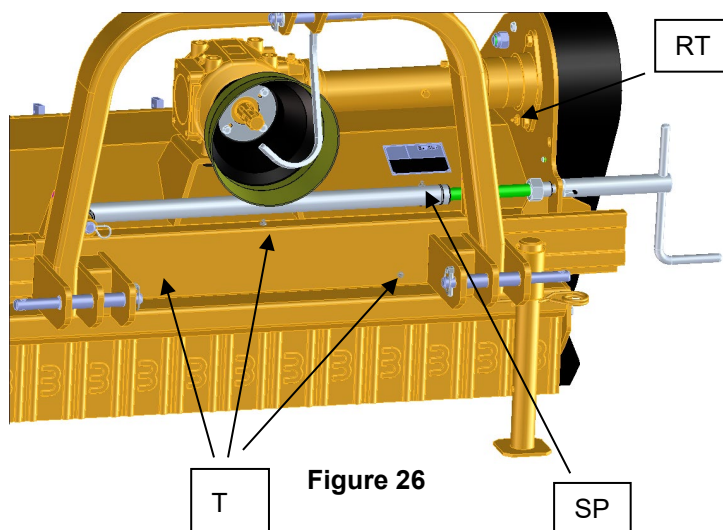
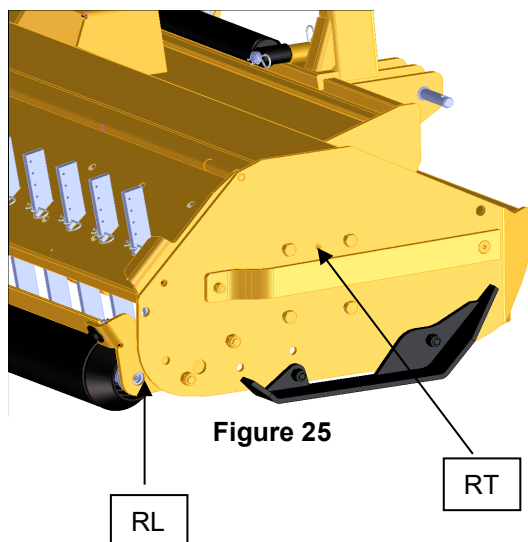
OVERALL GREASING:

	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.	Denomination	Lubrication intervals	Notes
RT	Rotor	8 hours	Grease it using the manual pump 1-2 times, to avoid damaging the inner seals of the supports.
RL	Levelling roll	8 hours	Grease it using the manual pump 1-2 times, to avoid damaging the inner 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.	Mechanic movement	8 hours	Grease it using the manual pump 1-2 times on the 3 grease fittings of the mechanical movement.
TA1	Tensioner automatic	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

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



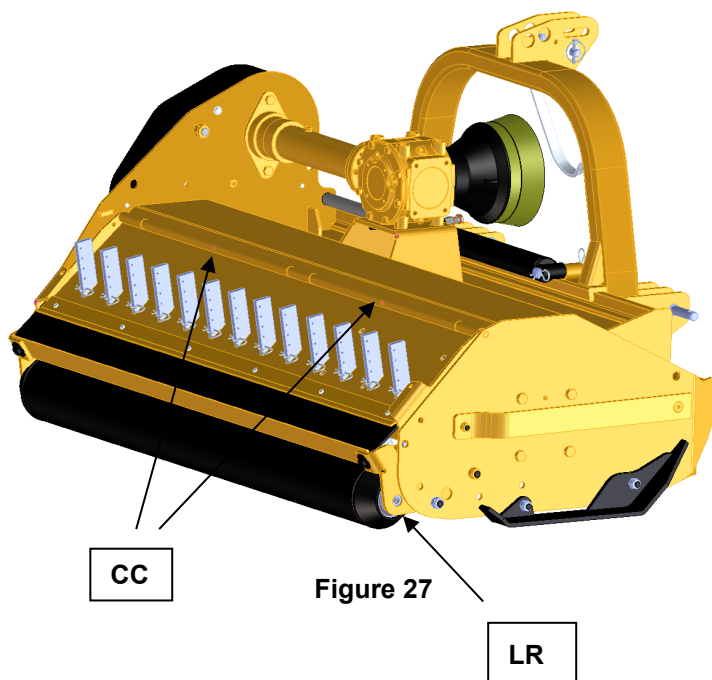


Figure 27

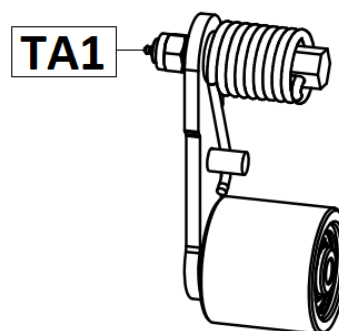


Figure 28

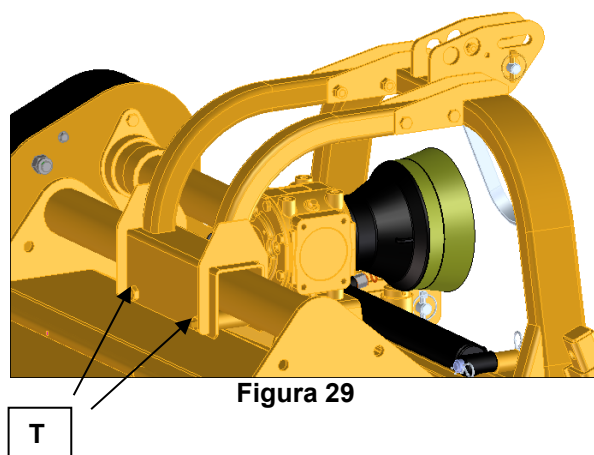


Figure 29

OPTIONAL:

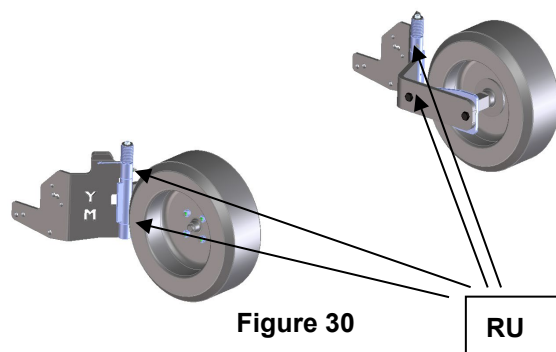


Figure 30

Only use a manual greasing pump, in order to prevent the breaking of bearing seals and grease passage pipes.

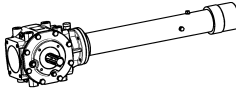
 RECOMMENDED LUBRICANTS empfohlenen Schmiermittel - lubrifiant recommandé							
 GREASE	PETRONAS	TAMOIL	ENI	IP	ESSOMOBIL	SHELL	TOTAL
	AMBRA HYPOIDE 140	TAMGEAR MP 85W/140	ROTRA MP 85W-140	PONTIAX HD 85W/140	MOBILLUBE HD 85W/140	SPIRAX S2 A 85W/140	EP 85W/140
	AMBRA GRS PLUS EP2	TAMLITH EXTRA BLU EP2	GREASE MU EP 2	ATHESIA EP GREASE 2	MOBILPLEX EP 2	GADUS S2 V220 2	MULTIS EP 2

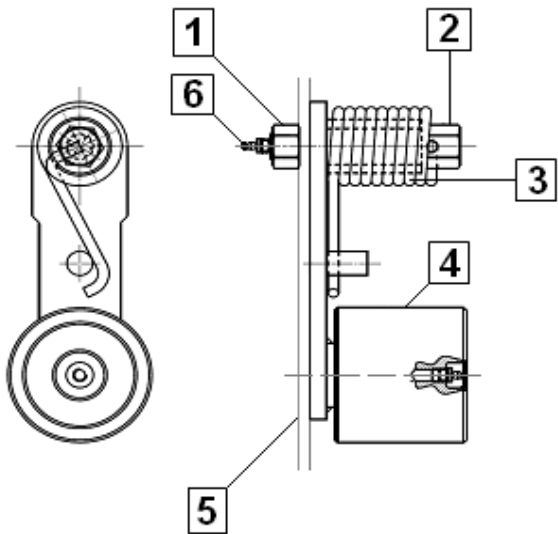
Table 7

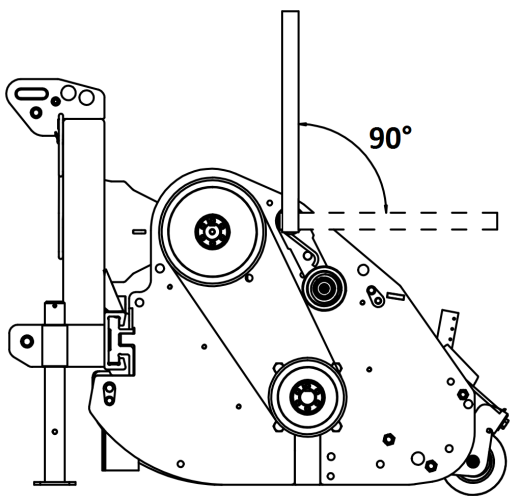
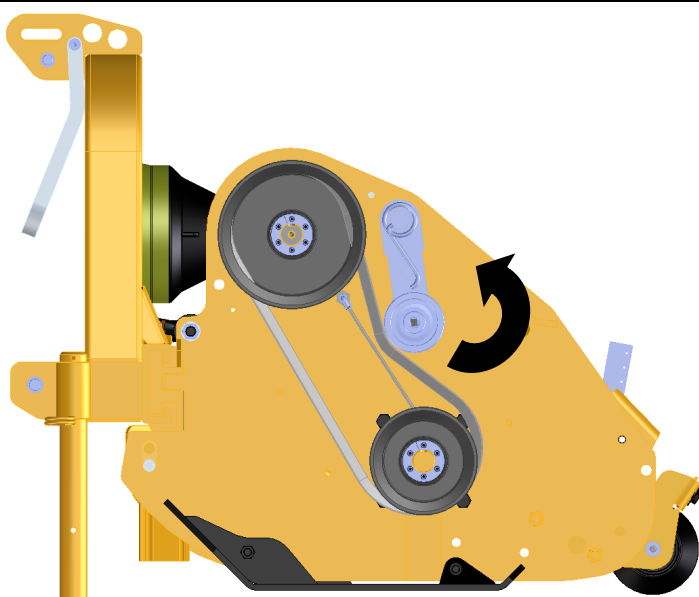
4.2.3. ADJUSTMENT OF TRANSMISSION BELT TENSION

	Before adjusting the tension of the belts, carefully read and make sure you have fully understood 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	Thanks to the automatic belt tensioner, is not necessary to adjust the belts tension. An intervention of the belts tension may be necessary only in case of: • Mechanical breakage of the automatic tensioner spring (figure 31); • Loosening of the nuts that fasten the tensioner.

BELTS TENSION ADJUSTMENT PROCEDURE:

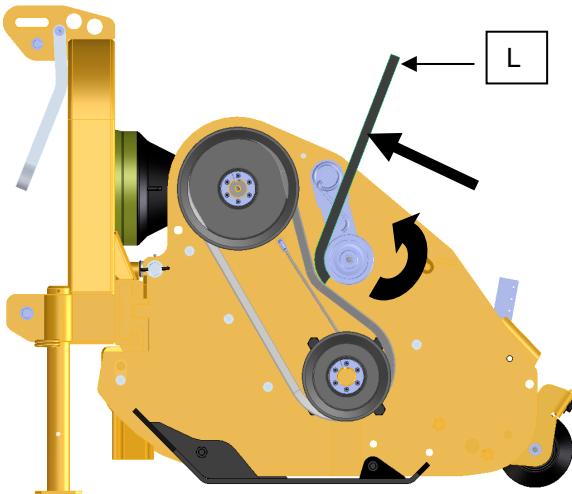
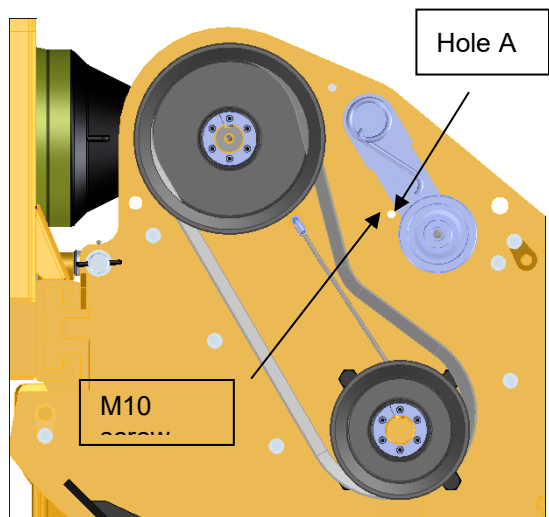
Proceed as follows to adjust the tension of the transmission belts:

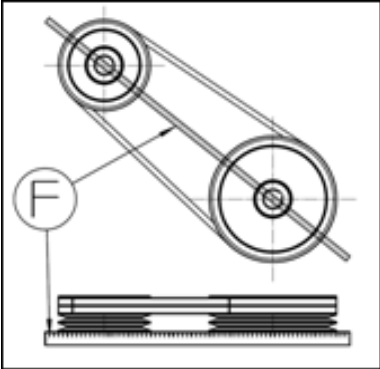
	1. Remove the transmission covering casing.														
	2. After replacing the spring or any other damaged part, take the tensioning unit (figure 31) and place it on the side of the mulcher, inserting the hex bolt 30 as shown in figure 32;														
 <table border="1" data-bbox="1053 1422 1439 1825"> <thead> <tr> <th>Pos.</th><th>Denomination</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 31		Pos.	Denomination	1	Self-locking nut M20	2	Hex bolt of 30	3	Tensioning spring	4	Sliding point	5	Machine side	6	Greaser
Pos.	Denomination														
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;
	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. Put pressure on the roll, moving it away from the belts for a few inches and then release it. The roll must run freely;
	7. Remount the crankcase using the appropriate screws.
	 Figure 32
	Never work without the belt protection casing.

4.2.4. REPLACING THE TRANSMISSION BELTS

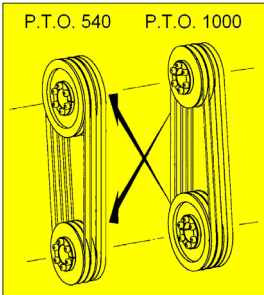
The transmission belts replacement operations must be performed while the mulcher is placed on the ground, the tractor stopped, the PTO disengaged, the ignition key out of the dashboard.

	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 33	 Figure 34
	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 should be aligned with each other: check with a ruler F that this is the case.  Figure 35
	5. Remount the crankcase using the appropriate screws.
 ATTENZIONE	Never work without the belt protection casing.

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

4.2.5. PULLEYS INVERSION

 ATTENZIONE	The machine can be used with PTO active of the operating machine both at 540 rpm and 1000 rpm. The machine is designed with PTO at 540 rpm. In order to use machine with PTO at 1000 rpm, invert the pulleys.
	
 ATTENZIONE	ATTENTION: DO NOT invert the pulleys for PTO at 1000 rpm if the machine is designed with inter-row element (inter row probe, SPEEDY, ECOLOGY, ECOSPRINT, ROTO WINDROWER) The rotation regime of the inter row component wouldn't be correct

4.2.6. HYDRAULIC SYSTEM

	Visually check the machine, make sure tat there are no loosened couplings, damaged tubes, cuts or any other signs of wear. Tighten the loosened couplings and replace the damaged or worn tubes.
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The hydraulic system diagram is indicated in figure 36 and is made of:

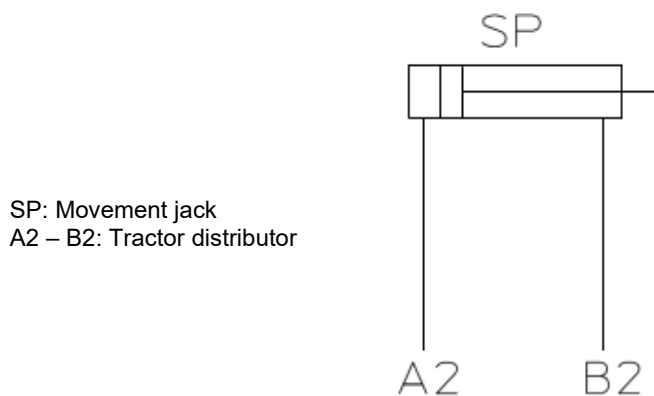


Figure 36

In order to connect the machine consult chapter 3 paragraph 3.4

HYDRAULIC TUBING REPLACEMENT PROCEDURE

	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;
	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 otherwise you will damage the threads of the fittings.
	Any maintenance residues, such as, straps or replaced materials containing flammable residues must be kept away from sources of ignition and disposed of in accordance with applicable laws in the country of use.
	The gathered oil must be disposed of in compliance with the laws in force in the country of use.

4.2.7. 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
Damaged or tools that are excessively worn might transmit vibrations to the machine; in this case, the operating cycle should be stopped immediately and it should be restored only after replacing the tools.

	Replace the worn and/or damaged tools with original tools distinguished by the Berti mark.
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Hammer type "A":

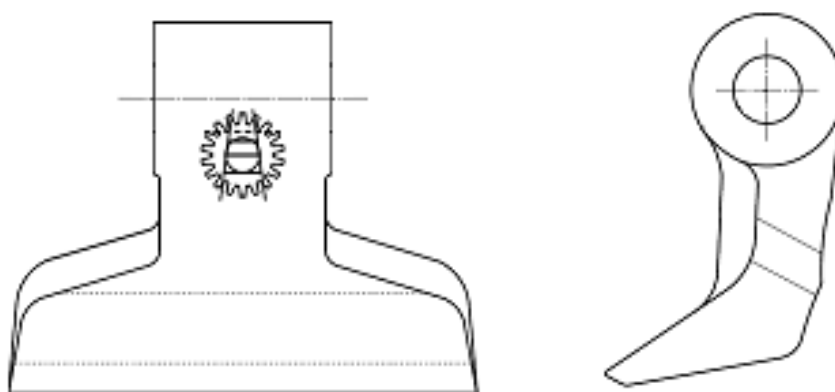


Figure 37

Universal blade "Y":

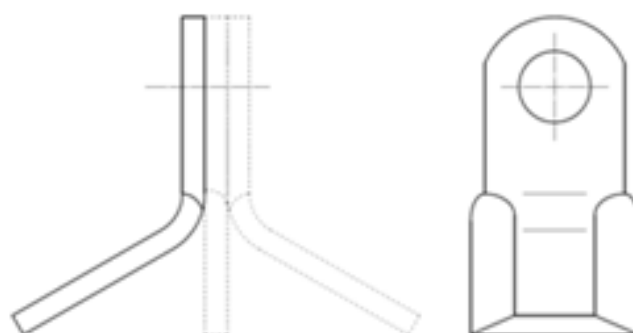
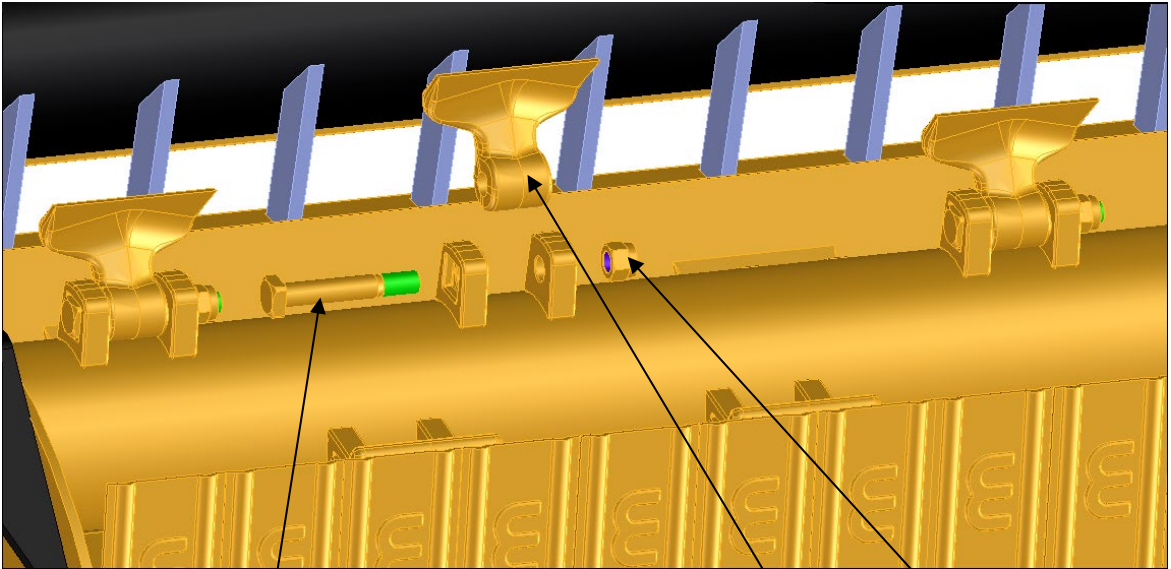
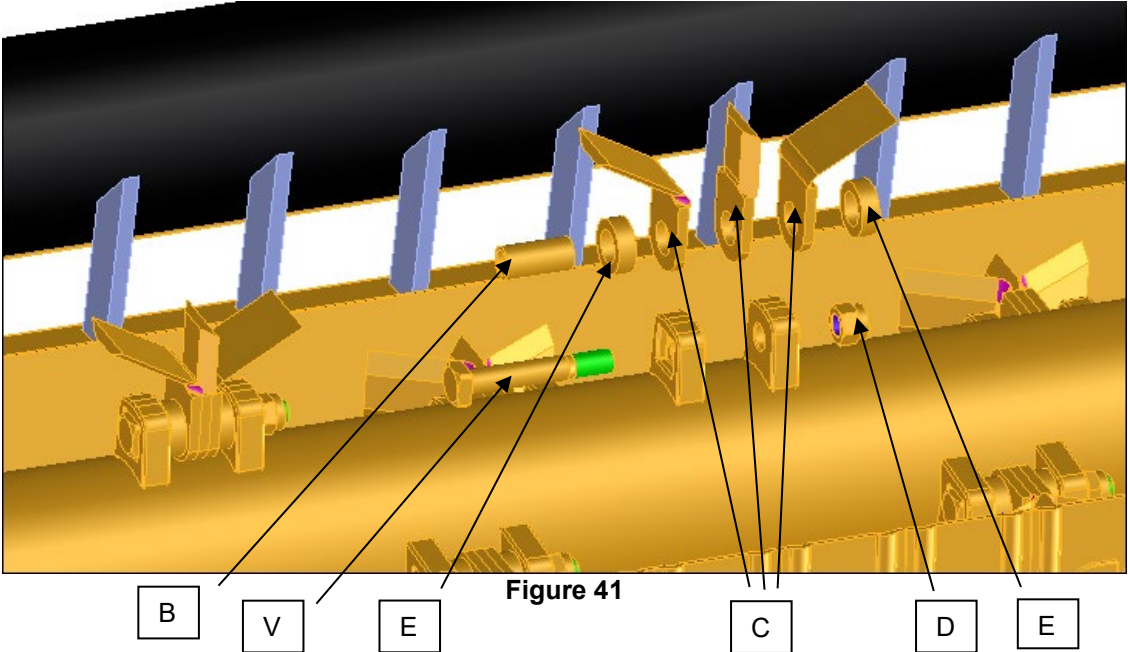


Figure 38

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

4.2.7.1. TOOLS REPLACEMENT PROCEDURE

 ATTENZIONE	In case only one tool should be replaced, it is recommended to replace the entire series. Using non-original tools can cause anomalous vibrations of the machine. Pay attention to the direction in which you assemble the tools.  Figure 39
 PERICOLO	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 40). 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.  V A D Figure 40
	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 41) 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 41
	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.
	Pay attention to the direction in which you assemble the tools. If mounted in the wrong direction, the machine will not be able to cut.
	If after replacing the tools, the vibrations persist, proceed with a new dynamic balancing of the rotor at a specialised workshop.
	Periodically check the hammers screws and nuts fastening; if they are loose, the rotor may get damaged and dangerous ejections may occur.
	The original spare parts provided by our company ensure complete and correct use of the machine.

4.2.8. 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;
	At the workshop, use appropriate equipment to support and move the machine especially regarding the maximum weight that can be lifted and sustained (see table 1 paragraph 1.5.3) in compliance with the laws in force in the country of use.
	2. Unscrew the nuts D and remove the screws V as shown in figure 42;

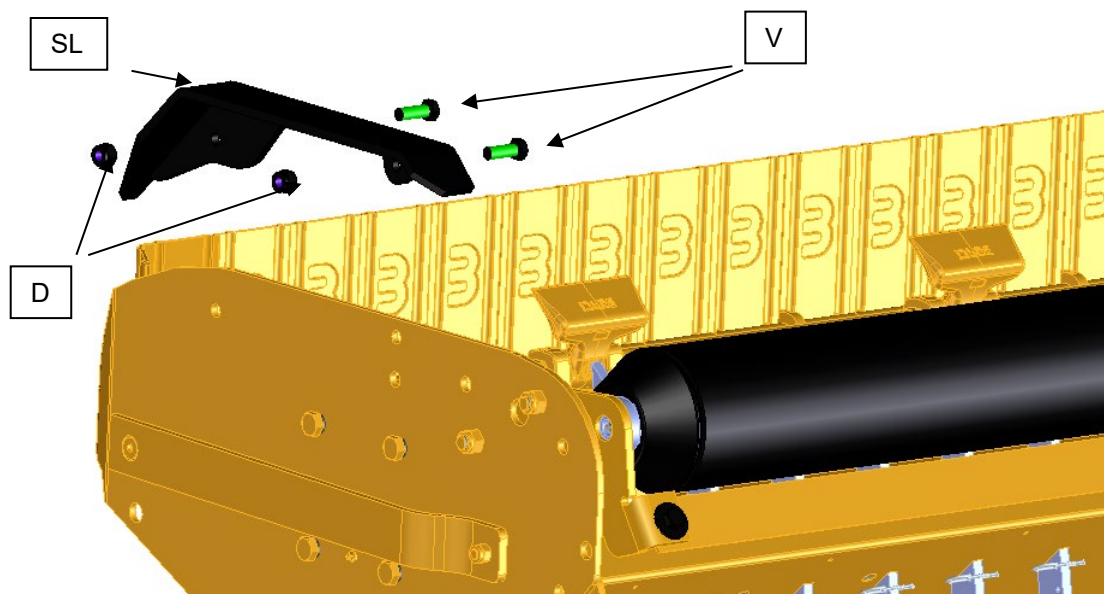


Figure 42

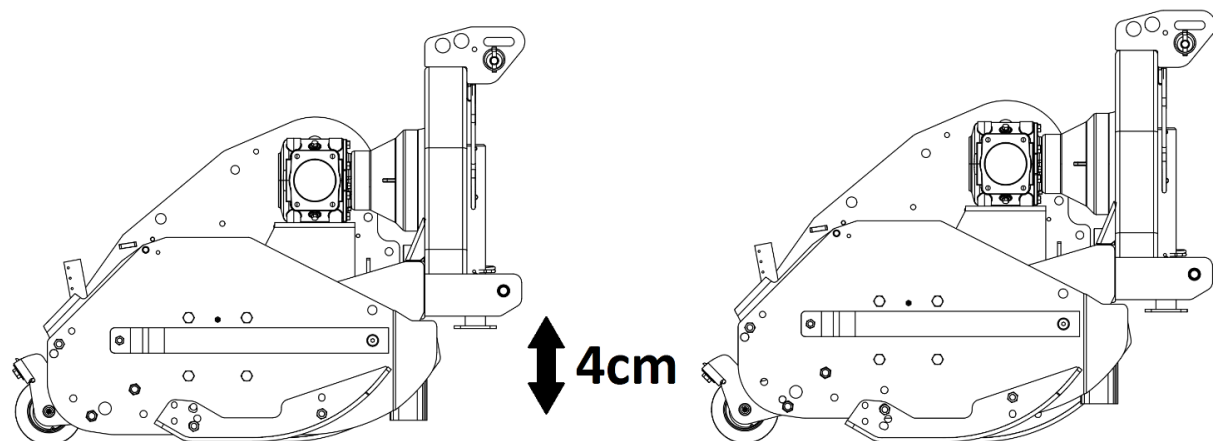
3. Replace the anti-wear slides SL both from the right and from the left side of the machine;
4. Mount the screws V using the appropriate nuts D;
5. After completing all the operations, turn the machine over once again, place it on the ground and repeat the connection and start-up procedure described in paragraphs 3.4. and 3.5.

SLEDS ADJUSTEMENT



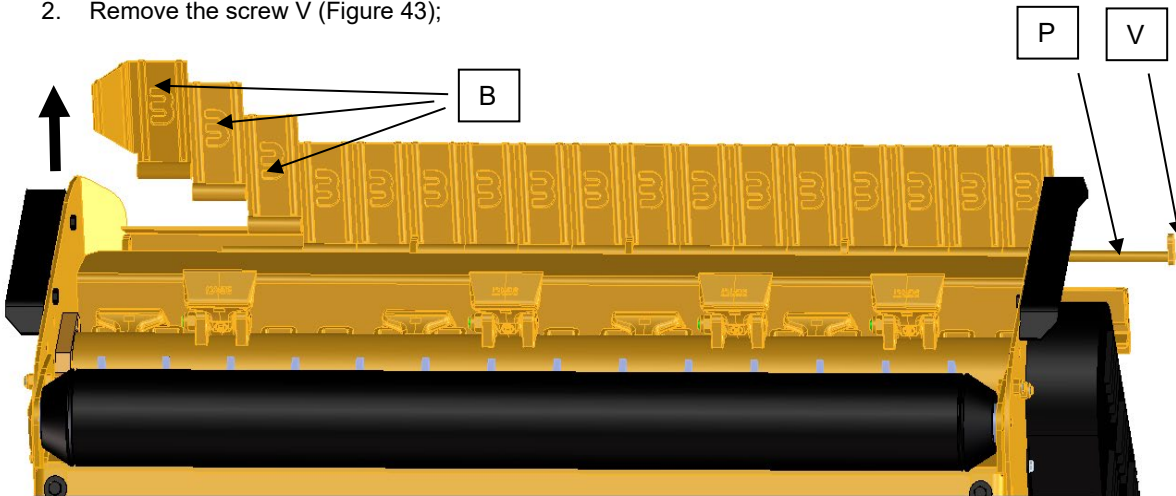
Sleys can be adjusted in order to obtain a different cutting height.

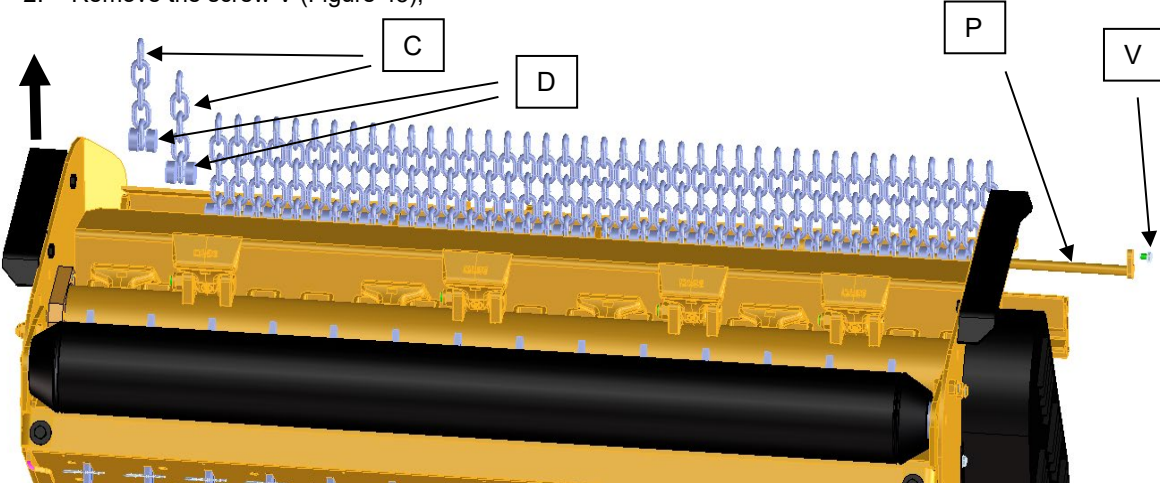
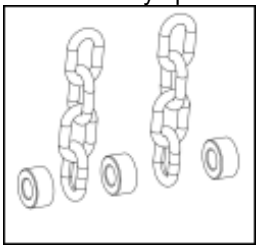
IMPORTANT: adjust the levelling roll height according to sleys' height. The machine must be parallel to the ground.



4.2.9. REPLACEMENT OF THE FRONT GUARDS OF THE MACHINE

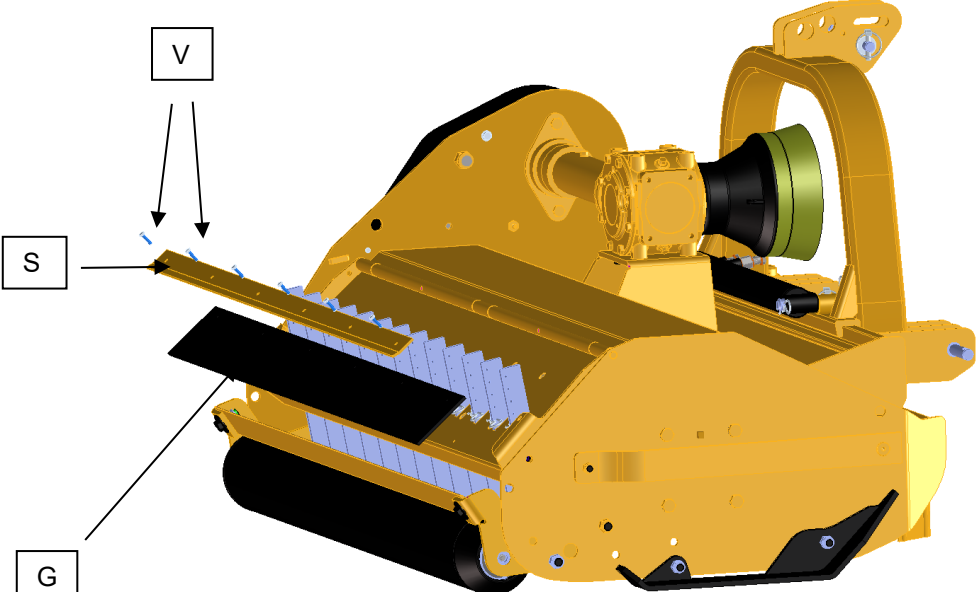
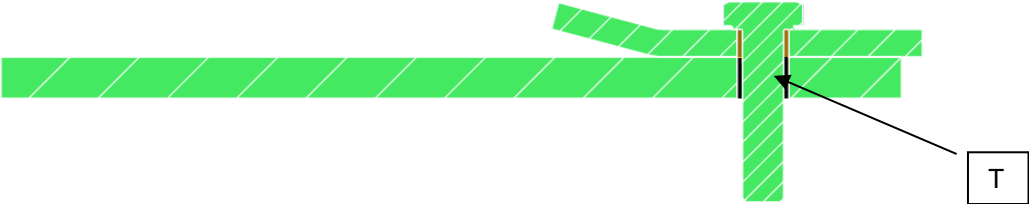
The machine is equipped with frontal guards consisting of panels or chains fastened to the machine crate.

FRONT GUARDS - PANELS	
	Panels must always be present and they must be in excellent state. 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 43);  Figure 43
 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 44
	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.
	The original spare parts provided by our company ensure complete and correct use of the machine.
FRONT GUARDS - CHAINS	
	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 45);  Figure 45
	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-axle pin P; Respect the order of the chains and spacers assembly operations as indicated in figure 46.  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.
	The original spare parts provided by our company ensure complete and correct use of the machine.

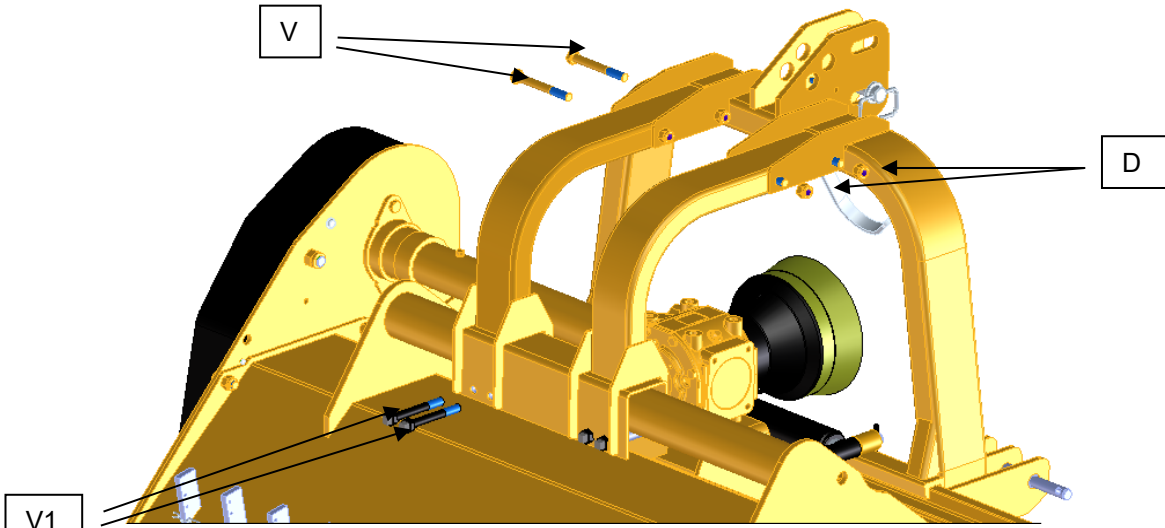
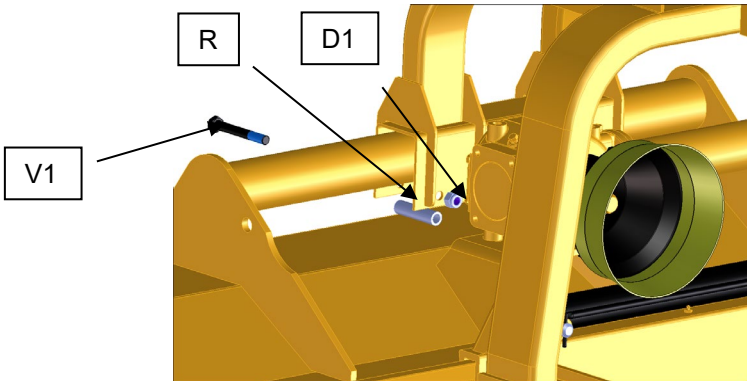
4.2.10. REPLACEMENT OF THE REAR TYRE

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

 PERICOLO	At the workshop, use appropriate equipment to support and move the machine especially regarding the maximum weight that can be lifted and sustained (see table 1 paragraph 1.5.3) in compliance with the laws in force in the country of use.
	1. Disconnect the machine from the tractor;
	2. Unscrew the screws V as in figure 47, ensuring that the rubber fabric sheet G and the support S do not fall to the ground;
	 Figure 47
	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 48);  Figure 48
	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.

4.2.11. REPLACEMENT OF THE TILLER WITH TIE ROD

Only replace the tiller with tie rod in case of breakage or extraordinary maintenance.

	1. Unscrew the nuts D and remove the screws V (figure 49);
	2. Unscrew the nuts D1 and remove the screws V1 (figure 49-50), making sure that the feeding rolls R does not fall to the ground;
	At the workshop, use appropriate equipment to support and move the machine especially regarding the maximum weight that can be lifted and sustained (see table 1 paragraph 1.5.3) in compliance with the laws in force in the country of use.
	 Figure 49
	 Figure 50
	3. Pull out the tie rod TT (figure 51);

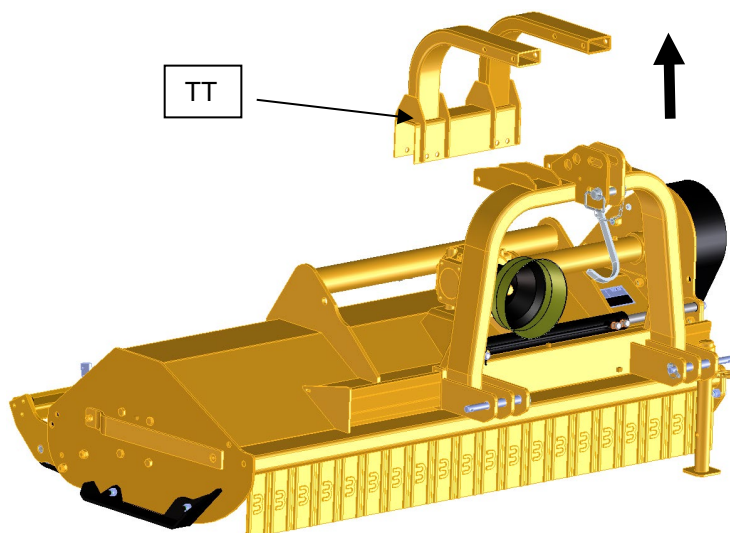


Figure 51

4. Remove the tiller T from the machine (figure 52);

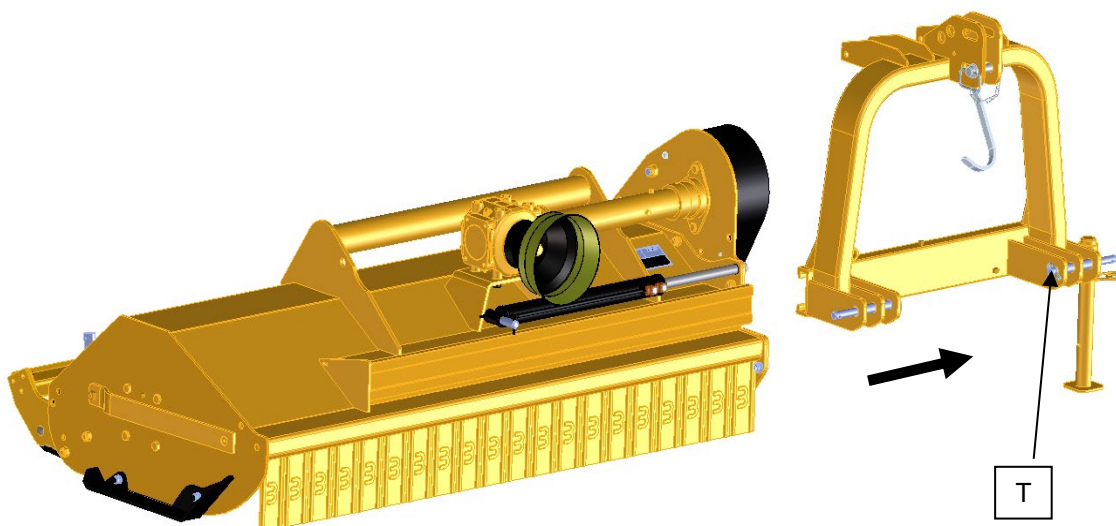


Figure 52

5. Check for any damages; if any, proceed to immediate repair;

6. After completing all the operations, fit the tiller and the tie rod on the machine and repeat the "Connection and Start-up" procedure described in paragraphs 3.4. and 3.5.



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

4.2.12. CLEANING THE MACHINE

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

4.3. STORAGE - WINTERING

If the machine is immobilised for long periods, it must be stored in a place sheltered from atmospheric conditions and be protected to avoid damage.

Before every wintering, proceed as follows:

- Free the rotor and the tools from 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.



Make sure 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

In the event of scrapping, the machine must be disposed of in suitable waste disposal sites, in compliance with the laws in force in the country of use.

Before scrapping, separate the parts in rubber or plastic as well as the electric and electronic equipment (if present).

Recover any waste oils and dispose of them at relevant collection centres.

The parts made only in plastic, aluminium, steel, can be re-cycled, if collected by appropriate centres.

4.5. SCHEDULED MAINTENANCE TABLE

Description	Checks
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 optional steering wheels	Every 8 working hours
Machine bolts fastening check	After the first 4 h and then every 50 hours
Belt tension check	After the first 4 h and then every 50 hours
Tools wear and fastening check	Before each work shift
Tools, screws and nuts replacement	Every 200 working hours or when damaged or when worn
Transmission belts replacement	Every 400 hours or when too worn out
Pulleys replacement	Every 400 hours or when too worn out
Rotor balancing	Every partial or total replacement of tools
Support slides replacement	Every 400 hours or when too worn out
Guards integrity check	Every machine start-up. Restore the guards if worn and/or damaged.
Pictograms check	Every machine start-up. Restore if worn and/or damaged.
HYDRAULIC SYSTEM	
Hydraulic tubes fastening check	At each start-up and each fluid leakage
Check of the hydraulic tubes	Check at every start-up. In case of damage or seepage, replace immediately

4.6. TROUBLESHOOTING TABLE

ANOMALY	CAUSE	REMEDY
Uneven or poor quality 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 tool wear	• 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 the 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
The rotor does not rotate	• Foreign body stuck • Breakage of the bearing • Breakage of the gearbox • Breakage of the transmission • Breakage of the belts • Breakage of the rotor shaft • 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

Worn/thorn seal rings	• Excessive lubrication • High rotor rotation speed • Incorrect seals assembly	• Change the seal rings • Check the machine adjustment • Ask the manufacturer for further information
Broken/detached frame	• 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. Remember that the request for spare parts must be correct and accompanied by the following indications:

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

If it is a component that is part of a major unit (rotor, multiplier unit, guards), you should also specify the model and serial number of the unit.

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. In any case, the transport and labour costs will be borne by the customer.
- The warranty does not include payment for damages due to improper use of the machine or for parts subject to wear and tear such as: hammers, blades, belts, etc.
- The manufacturer is not responsible for accidents to the operator or third parties arising from improper use of the machine.
- This warranty is void if:
 - a) the maintenance and repairs have been performed by unauthorised individuals or companies;
 - b) the machine has been previously repaired or modified with non-original spare parts;
 - c) If there is confirmation of incorrect operation of the operator;
 - d) The machine was not properly maintained/lubricated;
 - e) The permitted power limit is exceeded;
 - f) Whenever the instructions given in this manual are not followed;
 - g) Any unauthorised modifications were performed.
- Any 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 fault may be used as a motive to delay the payment.
- The manufacturer reserves the right to make any modifications considered necessary to improve its products at any moment and is not obliged to add these modifications to machines that have already been manufactured, delivered or are under construction.
- These general warranty conditions replace and cancel any other previous condition, expressed or implied.

5.3. NOTES

[illegible]



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