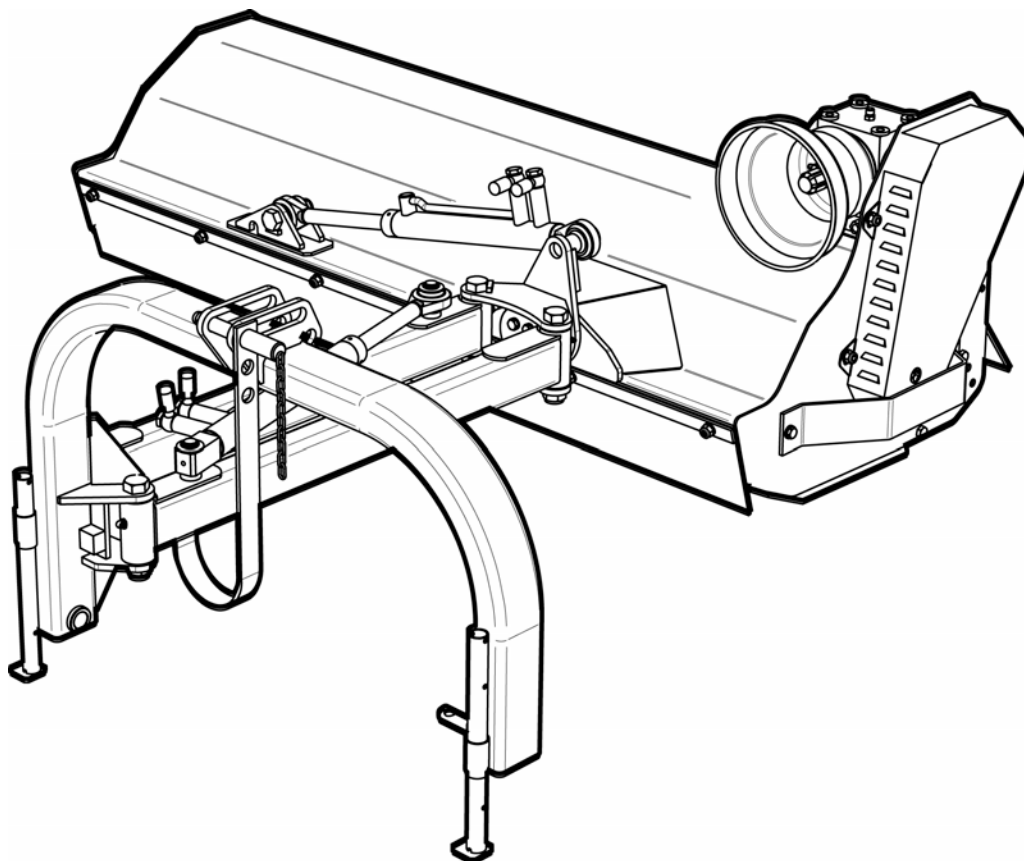




## MAINTENANCE AND USE MANUAL



### **SHREDDER**

Machine	Serial number	Model
<b>ZME</b>	<b>01</b>	<b>125 155</b>



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# Product Registration Card

To register your new FERRI Boom Mower, In-Line/Slope Mower or Flail Mower completely fill out the card below and mail it back to FERRI (Postage is already paid)

**Warranty Proof:** Your registration serves as proof of purchase for your warranty coverage. Please make sure the card is completed in order to guarantee coverage.

Date \_\_\_\_\_

*Please Print Information*

## Owner Information

First Name \_\_\_\_\_ Last Name \_\_\_\_\_

Company Name \_\_\_\_\_

Address \_\_\_\_\_

City, State, Zip \_\_\_\_\_

Telephone # \_\_\_\_\_ Fax # \_\_\_\_\_

Owner Signature \_\_\_\_\_

## Dealer Information

Dealer Name \_\_\_\_\_

Address \_\_\_\_\_

City, State, Zip \_\_\_\_\_

Dealer Signature \_\_\_\_\_

Dealer Phone # \_\_\_\_\_

Model Purchased \_\_\_\_\_

Serial Number \_\_\_\_\_

Date Purchased \_\_\_\_\_

Accessories Purchased \_\_\_\_\_

### Product to be used for:

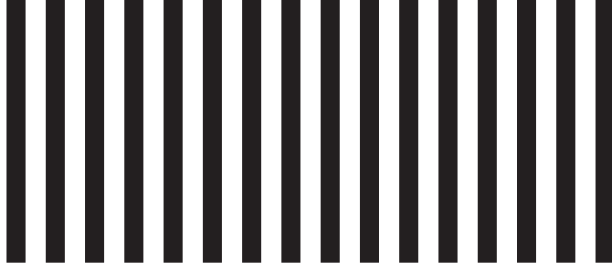
- |  |                                       |
|--|---------------------------------------|
| <input type="checkbox"/> Government Agency | <input type="checkbox"/> Municipality |
| <input type="checkbox"/> Golf Course       | <input type="checkbox"/> Agricultural |
| <input type="checkbox"/> School            | <input type="checkbox"/> Landscaping  |
| <input type="checkbox"/> Other _____       |                                       |



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# PRECAUTIONARY STATEMENTS

## PERSONAL SAFETY

Throughout this manual and on machine decals, you will find precautionary statements ("CAUTION", "WARNING", and "DANGER") followed by specific instructions. These precautions are intended for the personal safety of you and those working with you. Please take the time to read them.



**CAUTION**

**THE WORD "CAUTION" IS USED WHERE A SAFE BEHAVIORAL PRACTICE ACCORDING TO OPERATING AND MAINTENANCE INSTRUCTIONS AND OTHERS FROM ACCIDENT INVOLVEMENT. DECALS ARE BLACK AND YELLOW.**



**WARNING**

**THE WORD "WARNING" DENOTES A POTENTIAL OR HIDDEN HAZARD WHICH HAS A POTENTIAL FOR SERIOUS INJURY OR POSSIBLE DEATH. IT IS USED TO WARN OPERATORS AND OTHERS TO EXERCISE EVERY APPROPRIATE MEANS TO AVOID A SURPRISE INVOLVEMENT WITH MACHINERY. DECALS ARE BLACK AND ORANGE.**



**DANGER**

**THE WORD "DANGER" DENOTES A FORBIDDEN PRACTICE IN CONNECTION WITH A SERIOUS HAZARD IMMINENT DEATH OR CRITICAL INJURY. DECALS ARE RED AND WHITE.**

**FAILURE TO FOLLOW THE "CAUTION", WARNING", AND "DANGER" INSTRUCTIONS MAY RESULT IN SERIOUS BODILY INJURY OR DEATH.**

# PREFACE

## To work in safety you must:

- 1) Apply the general precautions for the use of all mechanical means as set out in Chap. 3;
- 2) Always follow the instructions for use given in the USE and MAINTENANCE manual or, in the case of particularly complex equipment, follow specific courses offered by manufacturers, dealers, technical assistants, etc.;
- 3) Do not remove, tamper with or modify any part of the machine if this is not contemplated in the use and maintenance manual;
- 4) Repair or replace the guards and any worn or broken parts following the indications given in the use and maintenance manual;
- 5) Ensure that the safety decals showing the warning signals are kept in good condition;
- 6) Carry out maintenance on the machine according to the instructions given in the use and maintenance manual;
- 7) Check that the safety regulations required by law are respected and, if they are not, apply to specialised technical personnel (manufacturers, dealers, technical assistants, etc.).
- 8) Keep all the guards in perfect working order.



### WARNING

#### **IMPORTANT WARNING:**

**All the technical precautions, as regards safety against thrown objects, adopted in the design of machines (at the present state of the art they are the same for all manufacturers) do not allow absolute safety to be achieved.**

**There unfortunately remains a residual risk that cannot be eliminated and which, besides depending on the probabilistic nature of the trajectory of the cut material, is inherent to the particular nature of operation of the machines.**

**So it may happen that, even during appropriate use of the machine, small stones, chips or other material may escape the protective barriers and be thrown far away.**

**It is therefore absolutely obligatory that there be NO ONE IN THE RANGE OF ACTION OF THE MACHINE (AT LEAST 50 YARDS) DURING ITS OPERATION.**

**In particular, it is recommended to take great care when working near roads and/or buildings.**



### CAUTION

**Before assembling any machine with electric/electro-hydraulic controls and/or heat exchanger on the tractor YOU MUST read the assembly instructions on the electrical connections.**

**Failure to observe the said instructions faithfully may result in considerable damage to the electrical system, thereby invalidating the warranty of the same.**



# **1 GENERAL INFORMATION**

## ***1.1 Introduction and purpose of the manual***

This manual aims to explain the correct use of the machine and to supply the client with all the necessary information for using the machine as independently and safely as possible. It includes details on technical aspects, machine function, maintenance, spare parts and safety.

Before carrying out any operation on the machine, the operators and qualified technicians must have carefully read the instructions outlined in this manual.

In case of any doubt as to the correct interpretation of the instructions, please ask the machine Manufacturer for clarifications. Please read this use and maintenance manual carefully and take careful note of the instructions provided before using or checking the machine.

In case any of the texts or tables are difficult to understand or the diagrams/drawings are unclear, please contact FERRI Srl directly for clarifications from use/maintenance experts or the authors of this manual.

FERRI srl is at the disposition of users, the sales department and any other interested party for improving the understanding of the whole manual.

This manual contains the rules for operation, routine maintenance, special maintenance and troubleshooting for the machine produced by FERRI srl.

**FERRI srl is continually striving to improve its product. We reserve the right to make improvements or changes when it becomes practical and possible to do so, without incurring any obligation to make changes or additions to the equipment sold previously.**



**This Manual has been drawn up according to the regulations in force at the time of printing.**

This manual supplies all the information for the use and maintenance of the machine. Its good operation and duration will depend on correct maintenance and care during use.

**Some illustrations in this manual show details or accessories that may be different from those on your machine; some components may have been removed to ensure that the illustrations are clear.**



**It is recommended to use only genuine spare parts and accessories.  
Besides invalidating the guarantee, spare parts that are not genuine could be dangerous, reducing the working life and performance of the machine.**

### ***1.1.1 Addressees***

The manual is for both operators and maintenance technicians of the machine.

Drivers must not carry out operations meant for maintenance technicians or qualified technicians.

The constructor is not responsible for any damage caused by non-observance of this regulation.

The information contained in this manual is addressed to professional users who must have specialized knowledge on how to drive the tractor to which the machine is connected and who must have authorization and the correct qualifications to do so.

The technical information contained in this manual is property of FERRI srl and must be considered reserved information.

### 1.1.2 Conservation

The use and maintenance manual must be kept close to the machine and away from liquids and any other substance which could cause it to become illegible.

This manual, together with the declaration of conformity, must be considered an integral part of the machine supplied by FERRI srl and it must accompany the machine until it is demolished. If it is not delivered with the machine or if it is lost, you must apply to FERRI srl for a new copy, which will be sent to you in the shortest time possible. This manual contains regulations for use, ordinary maintenance, extraordinary maintenance and troubleshooting for the machine produced by FERRI srl.

### 1.1.3 Information on the machine

The materials used by FERRI srl to construct the machine have been selected according to the specific use for which the machine has been designed and made (see par.2.1.1): any substantially different uses may cause harm to persons and things and may be detrimental to the good operation of the machine. The respect of and strict conformity with the conditions of use, repair and maintenance, as specified below in this manual, are essential elements which form part of the intended use. The use of the machine for activities not contemplated in the design stage and not listed in this manual relieves FERRI srl of all direct or indirect responsibility. Any arbitrary modification made to this machine relieves FERRI srl of all responsibility for damage or injuries, even of a serious nature, which may occur to the operators, to third parties and to things. Correct use of the machine, scrupulous observation of the rules listed here and the strict application of all the precautions to prevent any situations of danger, will avoid the risk of accident or injury, while allowing the machine to work better and longer and reducing breakdowns to a minimum.



**FERRI srl declines all objective responsibility if the rules referred to in the machine are not applied and respected.**

If you have any question not answered in this manual or require additional copies or the manual is damaged, please contact your Dealer or

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Tel. 413-736-5462 Fax. 413-732-3786

<http://www.ferriamerica.com> e-mail: [info@JSWoodhouse.com](mailto:info@JSWoodhouse.com)

## 1.2 Machine identification

On the frame of each machine there is an identity plate (Fig. 1.1) showing the stamp, the dates of Manufacturer, the series number, the construction year, the machine weight, the transmission power and the maximum hydraulic pressure of the machine.

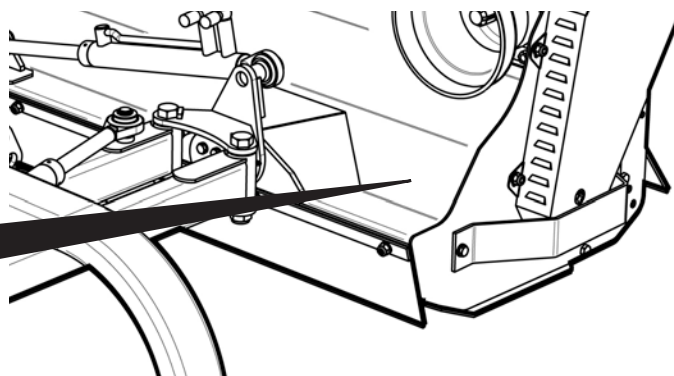


FIG. 1.1



**The data given on the identification plate are indispensable whenever asking for spare parts.**

### 1.3 Spare parts

It is strongly recommended to use genuine "FERRI" spare parts to avoid altering the technical features of the machine. FERRI is not responsible for any damage or injuries to the machine, persons or things due to unauthorized modifications.

### 1.4 Term 'right' and 'left'

With relation to the direction of movement while working, it is called "right machine" if the machine, while working, protrudes on the right-hand side and "left machine" on the left-hand side. (See FIG. 1.2 also with the machine fitted on a tractor with reversible drive FIG. 1.3).

Senso di marcia  
Direction of movement  
Sens de la marche  
Märzrichtung  
Sentido de marcha



FIG. 1.2

Senso di marcia  
Direction of movement  
Sens de la marche  
Märzrichtung  
Sentido de marcha

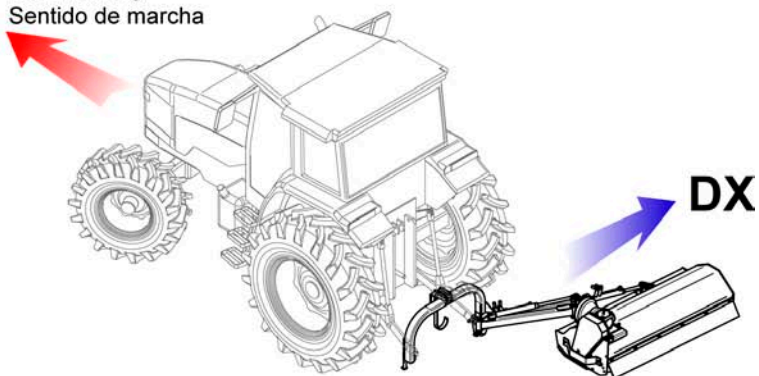


FIG. 1.3



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## 2 TECHNICAL CHARACTERISTICS

### 2.1 General description of the machine

The SHREDDERS, of the ZME series, available in 2 versions with different characteristics of power, weight and dimensions, have been designed, built and protected for use exclusively in the agricultural sector (for contraindications of use see paragraph 2.1.2). In the design and construction, all the necessary measures were taken to give a high-quality, reliable product, fully complying with the regulations in force and particular with accident prevention.

The manufacturer has designed this implement to be used with all its safety equipment properly attached to minimize the chance of accidents.

#### 2.1.1 Intended uses

The machine has been designed, built and protected for use exclusively in the agricultural sector for cutting grass, reeds, bushes and shrubs with a diameter of up to 1,2 inches approx. (appropriate use).

The machines to which this manual refers are carried by the tractor by means of a three-point connection and they act on the ground depending on their own weight and on the rotation of the rotor carrying the flails activated by the power take-off.

These machines are composed of a structure in which the working part is formed by a rotor with a horizontal axis, to which are connected the shaped flails which rotate at a faster speed than the advance speed. The machines have a system for adjusting the working height, obtained by means of lateral slides (optional) and a rear roller.

**The machine is not indicated for use in sectors other than agriculture and road maintenance.**



**WARNING**

**The machine must be used by only one operator.  
Any use other than that specified is considered improper.**

FERRI srl declines all responsibility if the safety decals supplied with the machine are missing, illegible or shifted from their original position.

If any decal is damaged or missing, you must ask to be sent a new one, quoting the machine identification data given on the data plate.

This machine is usually used in daytime; if in exceptional circumstances it is to be used at night or in conditions of poor visibility, the tractor lighting system must be used.

In conditions of reduced visibility, the tractor's lighting system must be used.

If exceptional night-time use is required, an auxiliary lighting system must be provided in order to guarantee good visibility in the whole work area without dangerous reflections for the operator, in addition to sufficient lighting in the cabin in order to guarantee identification of the controls.

#### 2.1.2 Contraindications

The principal contraindication for use of the SHREDDER are listed below:

- Ensure that, on the ground where you are to work, there are no large stones or rocks;
- Ensure that, on the ground where you are to work, there are not protruding tree stumps;
- Ensure that, on the ground where you are to work, there are not metal elements of any kind, in particular mesh, wires, cables, chains, tubes, etc.;
- carefully observe and apply the instructions for regulating the ground clearance of the machine, and always ensure that there are no other people within 50 metres of the working radius of the machine;
- it is recommended not to work "flush with the ground" on wet ground so as not to endanger the performance and balance of the machine, risking also damage to the rotor and the transmission belts. In these cases the flails become excessively worn, considerable motor power is used, and there is the risk of filling the inside of the rotor protective hood with pressed mud.

## 2.2 Description of the parts

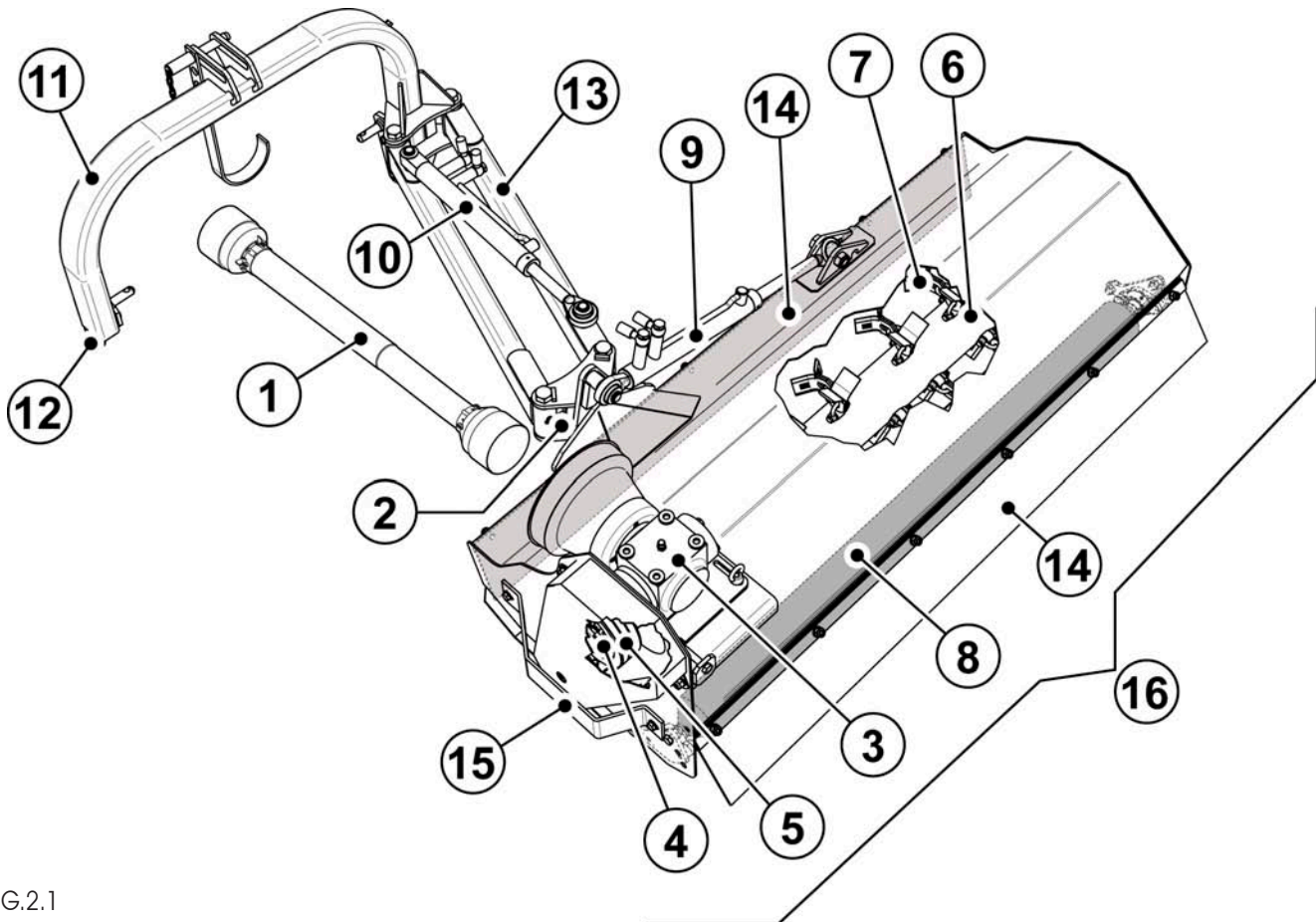
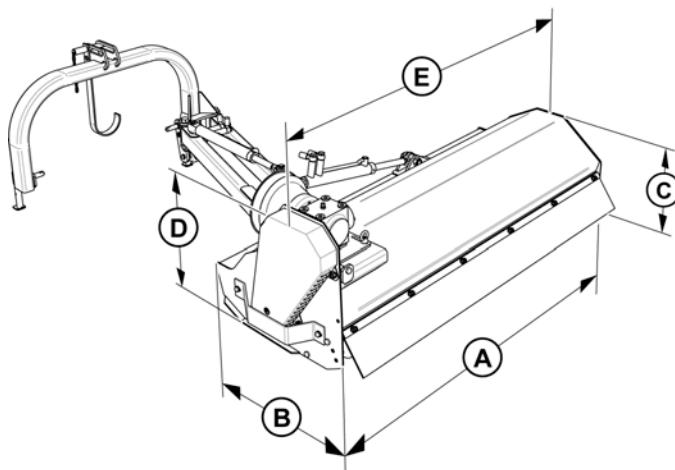


FIG.2.1

<b>1</b>	PTO shaft	<b>9</b>	Flail head orientation hydraulic ram
<b>2</b>	Flail head orientation articulation	<b>10</b>	hydraulic ram for lateral movement
<b>3</b>	Gearbox	<b>11</b>	3 point coupling
<b>4</b>	Pulleys	<b>12</b>	Support foot
<b>5</b>	Belts	<b>13</b>	Arms for lateral movement
<b>6</b>	Flail shaft	<b>14</b>	Guards
<b>7</b>	Flails	<b>15</b>	Lateral guard
<b>8</b>	Roller	<b>16</b>	Flail head

## 2.3 Technical specifications



		Dimensions	
		ZME125	ZME155
<b>A</b>	mt.	1,30	1,60
	ft.	4' 3"	5' 3"
<b>B</b>	mt.	0,65	0,65
	ft.	2' 2"	2' 2"
<b>C</b>	mt.	0,40	0,40
	ft.	1' 4"	1' 4"
<b>D</b>	mt.	0,60	0,60
	ft.	1' 12"	1' 12"
<b>E</b>	mt.	1,35	1,65
	ft.	4' 5"	5' 5"

TAB 1			
Model		ZME125	ZME155
Width of cut	cm (in)	125 (50)	155 (61)
Max lateral extension (*)	cm (in)	180 (71)	210 (83)
Min-Max tractor required power	HP (KW)	18/30 (14/22)	25/40 (19/30)
Min. tractor weight	Kg (lbs)	700 (1550)	900 (2000)
PTO speed	rpm	540	
Max. absorbed power (**)	HP (KW)	20 (15)	
Machine weight/PTO weight	Kg (lbs)	232/24 (512/52,5)	261/24 (576/52,5)
Coupling to tractor	cat.	1°	
Rotor speed	rpm	2600	
Peripheral speed	m/sec	45	
Articulated flails	N.	56	72
Hydraulic system pressure	Bar (PSI)	190 (2750)	
Hydraulic oil	Type	ISO-L-HM68	
Belts	N.	3	
Max inclination of the cutting body	degrees	(low) 50°	(high) 90°

(\*) From the axis of the tractor to the end of the flail head

(\*\*) For jobs where the absorption exceeds the maximum power indicated, it is advisable to use a PTO shaft with clutch (torque limiter).



CAUTION

**The tractor must be provided with 2 dual effect oil intakes.**

**If only one oil intake is available, it is necessary to fit the distributor kit with two levers (see paragraph 2.6.2).**

## 2.4 Noise

The noise level produced is checked on all the models of machines produced by FERRI srl.

The noise values indicated are emission levels and do not necessarily represent safe operational levels.

Despite the existence of a relationship between emission levels and exposure levels, it cannot be accurately used to establish whether further precautions are required or not.

The factors which determine the exposure level which the work force is subject to, include the duration of exposure, the characteristics of the work environment and other sources of noise (number of machines, nearby activities etc).

Furthermore, the permitted exposure levels can vary from one country to another.

However, the information on the level of noise produced by the machine will help the machine user to assess the dangers and risks.



**The noise level measured at the operator's ear is between 75 dB and 78.5 dB with the cab closed and between 82.9 and 84.4 dB with the rear glass of the cab open.**

**The acoustic power level is LWA 102,5. At a noise level perceived by the ear higher than 85 dB it is recommended to use personal protection equipment.**

**Noise over 85dB over an extended period of time will cause severe hearing loss.**

**Noise over 90dB adjacent to the Operator over an extended period of time will cause permanent or total hearing loss.**



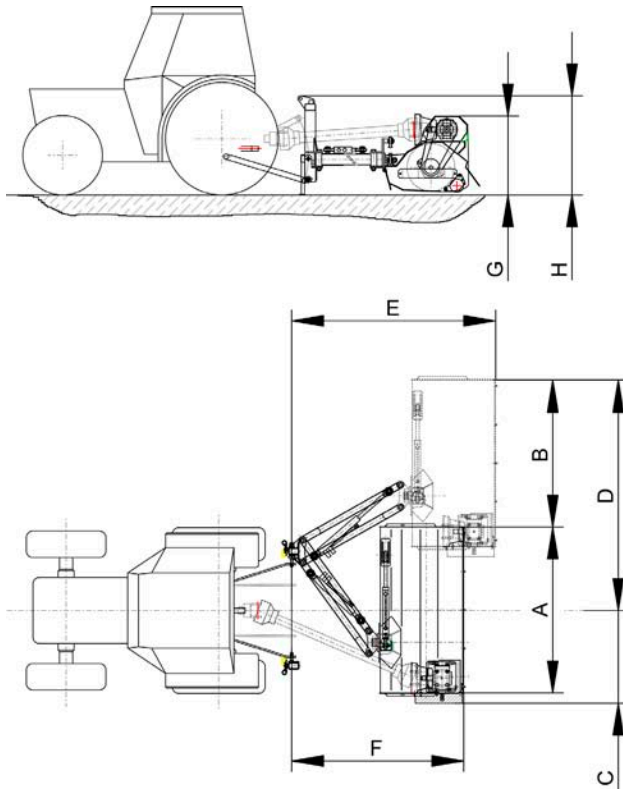
CAUTION

**According to the data measured in the various positions examined, in the absence of a soundproofed cab it is recommended to use personal hearing protection equipment.**



## 2.5 Width of cut

Fig. 2.2 shows the width of cut of the machine.  
The measurements are shown in TAB. 2.



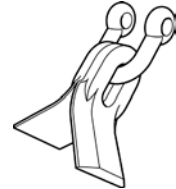
TAB 2		ZME125	ZME155
A	mt.	1,25	1,55
	ft.	4' 1"	5' 1"
B	mt.	1,11	1,12
	ft.	3' 8"	3' 8"
C	mt.	0,70	0,70
	ft.	2' 4"	2' 4"
D	mt.	1,74	2,04
	ft.	5' 9"	6' 8"
E	mt.	1,54	1,54
	ft.	5' 1"	5' 1"
F	mt.	1,30	1,30
	ft.	4' 3"	4' 3"
G	mt.	0,60	0,60
	ft.	1' 12"	1' 12"
H	mt.	0,75	0,75
	ft.	2' 6"	2' 6"

FIG. 2.2

## 2.6 Optional equipment

### 2.6.1 Flails

Depending on the different crops to be cut, the most appropriate flails may be replaced and used.  
The following table lists the cutting flails that may be fitted on the shredder and their respective characteristics.

TYPE OF CUTTING FLAILS	
DESCRIPTION	
Articulated "Y" flails with a straight flail for grass, shrubs and sticks up to 1,5 cm diameter.	

N.B.: Do not use on stony ground.



If irregularities or strange noises are noticed after changing the flails, contact the manufacturer.



### 2.6.2 Controls with distributor

For tractors with only one pressure oil intake and on specific customer request, it is possible to fit a two-lever control distributor (**A**) with flexible pipes, equipped also with a floating position for operating the hydraulic ram (**1**) in FIG. 2.3.

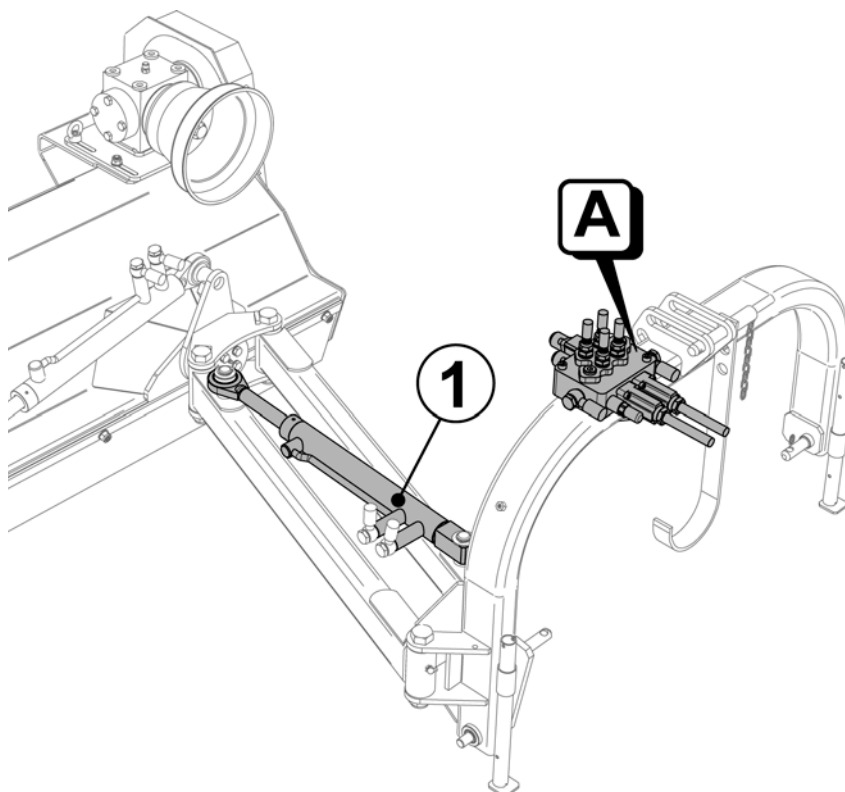


FIG.2.3



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## 3 SAFETY RULES

### 3.1 General safety rules

Safety of the operator and bystanders is one of the main concerns in designing and developing a machine. However, every year many accidents occur which could have been avoided by a few seconds of thought and a more careful approach to handling equipment. The operator can avoid many accidents by observing the precautions in this manual. To avoid personal injury or death, study the following precautions in this manual.

FERRI's machines have been built and designed exclusively for cutting grass, reeds, bushes and shrubs, any other use must be explicitly authorised in writing by the Manufacturer; Any modifications to the tool not authorised beforehand (in writing) by the Manufacturer relieve him of all responsibility.

All implements with moving parts are potentially hazardous. There is no substitute for a cautious, safe-minded operator who recognizes the potential hazards and follow reasonable safety practices as detailed in this manual.

#### BEFORE YOU START

- Read and comprehend safety message on the implement and shown in your manual.
- Observe the rules of safety and common sense.



**WARNING**

**FERRI do not answer for any damage caused by machine use that is not contemplated or unsuitable.**



**CAUTION**

**Carefully check the machine before the start.**

- As well as the warnings given in this manual, observe all safety and accident-prevention rules of a general nature. Do not operate the machine or perform maintenance until you have read and understood the instructions.
- The warning labels applied on the machine provide a series of important indications: observing them keeps you safe.
- Ensure that all the safety decals are legible. Clean them and replace them with new labels if necessary.
- Before starting to use the machine you must know its devices, controls and functions, and read this manual carefully.
- Before using the machine, ensure that all the safety devices are correctly in place and in good condition; if there are any faults or damage to the guards, change them immediately. In particular check that all front guards are present, in perfect condition and free to swing around the pin to which they are fixed.
- Before getting off the tractor and before each maintenance operation, apply the parking brake, switch off the engine and remove the ignition key from the dashboard.
- The user is responsible for the maintenance of the machine. This maintenance also includes keeping all the safety decals and protections in excellent condition. The owner must provide all the instructions to the operators or staff before allowing them to operate the machine, according to the regulatory Directives in the relative country.
- Anyone who has not read and understood all the operations and safety instructions is not qualified to operate the machine. An un-trained operator puts himself and other people at serious risk of injury or death.



**DANGER**

**Before each start-up and during the use of the machine, check for the presence, or for arrival of people, animals and/or vehicles, if there is anyone there, DO NOT operate.**



**DANGER**

**Never operate the tractor or implement until you have read and completely understand this Manual, the Tractor Operator's Manual, and each of the Safety Messages found in the Manual or on the tractor and implement.**



**DANGER**

**Start tractor only when properly seated in the Tractor seat. Starting a tractor in gear can result in injury or death. Read the Tractor operator's manual for proper starting instructions.**

- The manual must always be readily accessible, so that you consult it and check the operating cycle. If it is lost or damaged, you must apply to FERRI for a replacement copy.



## DANGER

**In case the machine is used for verge maintenance on public roads, the unit has to be driven only by experienced personnel that knows how to drive the machine safely and correctly.**

- Ensure to disengage power take off to the machine before starting the engine.
- The machine is designed to be used by only one operator.
- Never work with this machine if you are tired, ill or under the influence of alcohol, drugs or medicines.
- Check that the machine has not suffered any damage during transport; if you find any signs of damage, notify FERRI immediately.
- Keep the machine clean and free from foreign bodies (refuse, tools, various objects), which could damage its operation or harm the operator.



## WARNING

**Always wear seat belt. Serious injury or even death could result from falling off the tractor, particularly during a turnover when operator could be pinned under the ROPS.**

- ● Prolonged operation may cause operator boredom and fatigue affecting safe operation.
- Never operate the machine and tractor in a fatigue or bored mental state.



## DANGER

**It is absolutely forbidden to climb or to ride on the machine when it is moving.**

- Ensure that the PTO shaft is correctly fitted after each operation of connecting the machine.
- Disconnect the machine from the tractor only compact level ground, ensuring that it is still and stable (use the suitable stabilising feet).



## DANGER

**Check that the protections of the PTO transmission shaft are while and in good conditions. When the machine non is not coupled to power takeoff, the hydraulic pipes must be placed in the supports provided.**

- In the event of breakage or deterioration of the PTO shaft protections, replace them immediately.
- Do not use the controls or the flexible pipes as handholds: these components are mobile and do not offer steady support.
- Never work, walk or stand under the lifted arm. Before you carry out any maintenance work under the arm when suspended, make sure that the same is well and securely fastened or hooked to avoid accidental fall and damage.
- Never use the arm to raise people or objects.



## DANGER

**Do not, for any reason, get in between the tractor and the mower with the engine running and the power take off switched on.**



## WARNING

**Make certain that the "Slow Moving Vehicle" (SMV) sign is installed in such a way as to be clearly visible and legible. When transporting the Equipment use the Tractor flashing warning lights and follow all local traffic regulations.**



## WARNING

**Avoid contact with hot surfaces including hydraulic oil tanks, pumps, motors, valves, gear-box and hoses connections. Use gloves and eye protection when servicing hot components. Contact with a hot surface or fluid can cause serious injury.**

**WARNING**

Operate only in daylight or with adequate artificial lighting.  
It's necessary that the operator can clearly see at least 100 m (100 yards) in front and to the sides of the tractor and machine.

**DANGER**

To reduce the possibility that the blades could fail upon impact with heavy objects such as metal guard rails or concrete structure never allow the cutting blades to contact such obstacles.

**DANGER**

Replace bent or broken blade with new blades.  
Never attempt to weld on blades or straighten blades.

**WARNING**

Never cut an area that the operator has not inspected and removed debris or foreign material, to prevent machine damage and/or bodily injury or even death.  
Any objects that cannot be removed must be clearly marked and avoided by the operator.  
Stop cutting immediately if blades strike a foreign objects.

**DANGER**

Never run the tractor engine in a closed building or without adequate ventilation. The exhaust fumes can be hazardous to health.

**DANGER**

Never allow children to play on or around tractor or machine.

**DANGER**

**ENSURE THAT THE ROTOR HAS STOPPED COMPLETELY BEFORE APPROACHING THE MACHINE.**

**DANGER**

This machine is designed for use on a closed cab tractor only! If your tractor has an open cab, then it must be equipped with operator protective equipment in the form of shielding from thrown objects and Roll Over Protective Structure (ROPS) to operate this equipment safely.

**DANGER**

Before leaving the tractor seat and before each maintenance operation, always engage the brake and/or set the tractor transmission in parking gear, disengage the PTO, stop the engine, remove the key, and wait for all moving parts to stop.

**DANGER**

Never allow children or other persons to ride or operate on the tractor or implement. Falling off can result in serious injury or death.

**WARNING**

The user may carry out exclusively the maintenance operations described in this manual.

**WARNING**

**Do not operate this machine on a tractor that is not properly maintained. Serious injury and possible death could occur from not maintaining this machine and tractor in good operating condition**

- Do not modify the equipment in any way. Unauthorized modification may impair the function and/or safety and could affect the life of the equipment.

**DANGER**

**Do not tamper with, remove or make inefficient the protections and safety devices applied on the machine for the safety of the operator and of other persons and/or things.**

- **Use exclusively genuine “FERRI” spare parts.**

FERRI declines all responsibility in case of:

- improper use of the machine or use by untrained personnel;
- serious shortcomings in the required maintenance;
- unauthorised modifications or interventions;
- use of non genuine spare parts or parts not specifically intended for this model;
- total or partial failure to observe the instructions;
- failure to observe the common rules for safety at work;
- exceptional events.

**CAUTION**

**FERRI cannot foresee every possible circumstance which could involve a potential risk. The warnings given in this document and on the product are therefore not exhaustive.**

## 3.2 Safety rules concerning road traffic

**DANGER**

**Make sure the tractor steering and brakes are in good condition and operate properly.**

- When transporting the machine, review and follow these instructions:
- Disconnect the tractor power takeoff.
- When driving on public roads, observe all road regulations.
- Never transport the machine with the moving flail holder shaft, even for short distances.
- Lock the machine with the safety device provided (see par. 6.5).
- In case the machine is used for verge maintenance on public roads, the unit has to be driven only by experienced personnel that knows how to drive the machine safely and correctly.
- Do not allow anyone to ride on the machine or tractor during transport.
- Reduce speed on rough roads and surfaces.
- Use retainers on the mounting pins before transporting.
- Always use hazard flashers on the tractor when transporting unless prohibited by law.
- Make sure the SMV (Slow Moving Vehicle) emblem and all the lights and reflectors that are required by the local highway and transport authorities are in place, are clean and can be seen clearly by all overtaking and oncoming traffic.
- Be sure all bystanders are clear of the machine.
- Be sure the rotor drive is disengaged and has stopped turning.
- Be sure that the machine is securely attached to the tractor and all retainer pins are installed.
- Use the 3 point hitch to raise the machine at the maximum height to the ground.
- Drive on the road should if permitted by law.
- Test the tractor at a slow speed and increase the speed slowly. Apply the brakes smoothly to determine the stopping characteristics of the tractor and implement.



WARNING

Always proceed at a moderate speed, especially on rough surfaces and steep gradients, to avoid overbalancing. The weight of the machine alters the stability of the tractor and influences its behaviour on the road, steering and braking capacity.

It is obligatory to check the lifting capacity and the stability of the tractor to avoid its tipping and/or losing the grip of the steering wheels.

### 3.3 Safety rules during use



WARNING

Always check the machine carefully before starting up.(see par.4.5)  
Check the integrity of any protection.



WARNING

Many objects such as wire, cable, rope or chains could swing outside the housing of the machine at greater velocities than blades. Inspect the cutting area and remove any like object from the site.

- Pay special attention, when working with the machine, not to touch fixed objects, such as road drain wells, shafts, stones, guard rails, tracks, etc. This could cause the breakage of the flails, which would be thrown at very high speed.
- If metal wires, ropes, chains or similar, get tangled around the rotor, put the controls in neutral, switch off the tractor engine, put on the parking brake, remove the ignition key from the dashboard and wait for all the moving parts to stop moving, so as not to cause damage or create dangerous situations. **Put working gloves on, clear the rotor with the aid of pliers or shears. Do not try to disentangle by inverting the rotational direction of the rotor.**
- Do not use the machine when there is vibration in the flail head, as this would cause breakages and serious damage. Find the cause of the vibration and eliminate it.
- Do not let the blades turn when the machine is raised.
- Do not operate if exists excessive vibration. Inspect the machine to determine the source of the vibration and resolve the problem before operate.
- Do not operate with the arm in extension if the tractor is on a sloping ground; anyway check the stability of the tractor case by case as required. In order to check the tractor's stability safety, it is necessary to keep the flail head horizontal and as close as possible to the ground and then to lower the arm slowly.
- Before using the hydraulic controls for horizontal or vertical movements with the machine, the operator must make sure that no person; animal or things are around in the working area. It is forbidden to start any hydraulic movement if any or more people stand at less than 5 meter from the machine.
- It is absolutely forbidden to keep the rotor running during the lifting or lowering of the flail head.
- Read and understand the Operator's Manual and all safety signs before operating, servicing, adjusting, repairing or unplugging.
- Do not allow riders.
- Check all guards and shields before starting or operating, and repair or replace them if they're broken.
- Keep hands, feet, hair and clothing away from all moving and/or rotating parts.
- Disengage all controls, stop tractor engine, set park brake, remove ignition key and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.
- Clear the area of bystanders, especially small children, before starting.
- Stay away from machine hazard area when tractor engine or machine are running. Keep others away.
- Keep all hydraulic lines, fittings and couplers tight and free of leaks before using (see par. 3.4).
- Clean reflectors, SMV and lights before transporting.
- Use hazard flashers on tractor when transporting.
- Do not put hands or feet under machine while tractor engine or machine are running.
- Objects can be thrown out from under machine with sufficient force to severely injure people. Stay away from machine when it is running. Keep others away.
- Always know the area you are shredder. Never operate shredder in an area that has hidden obstacles.
- Avoid operation on steep slopes.
- Do not stop or start suddenly when going up or down a hill.

- Review safety instructions with all operators annually.
- Never leave tractor while the machine is in the lifted position. Lower the machine carefully to the ground before the operator leave the tractor.
- Do not put hands or feet under lifted components.



**WARNING**

**Safe operating speed depends on terrain condition and grass type, density and height of cut.**



**WARNING**

**Use slow operating speeds when cutting on or near steep slopes, ditches, drop-offs, power lines, overhead obstructions and when debris or object are to be avoided.**



**DANGER**

**Avoid operating in reverse direction, if it's possible, when work with 2 machines.**

### 3.3.1 To the new operator or owner

It is the responsibility of the owner or operator to read this manual and to train all other operators before they start working with the machine. In addition to the design and configuration of equipment, hazard control and accident prevention are dependent upon the awareness, concern and prudence of personnel involved in the operation, transport, maintenance and storage of equipment or in the use and maintenance of facilities.

Follow all safety instructions exactly. Safety is everyone's business. By following recommended procedures, a safe working environment is provided for the operator, bystanders and the area around the worksite. Untrained operators are not qualified to operate the machine.

## 3.4 Safety rules concerning the hydraulic system

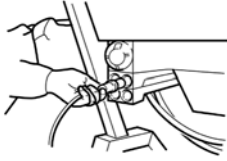


**WARNING**

**Any intervention or maintenance on the hydraulic system has to be carried out by duly educated personnel.**

- Replace any worn, cut, abraded, flattened or crimped hoses and metal lines.
- Do not attempt any makeshift repairs to the hydraulic lines, fittings or hoses by using tape, clamps or cements. The hydraulic system operate under extremely high-pressure. Such repairs will fail suddenly and create a hazardous and unsafe condition. If injury by a concentrated high-pressure stream of hydraulic fluid, seek medical attention immediately. Serious infection or toxic reaction can develop from hydraulic fluid piercing the skin surface.
- Before applying pressure to the system, make sure all components are tight and that lines, hoses and couplings are not damaged.
- Stop immediately in case of oil leaks.
- **IMPORTANT: do not look for oil leaks with bare hands, but always with the aid of suitable protective gloves.**
- Oil under strong pressure may seep into the skin causing serious infections or toxic reaction. In this case contact a doctor immediately.
- Use a piece of wood or cardboard as a backstop instead of hands to isolate and identify a leak.
- Check the flexible pipes; if they are worn or damaged they must be replaced (at least every 6 years).
- Before working on the hydraulic system, lower the end tool, exhaust all pressure and turn off the tractor.
- Used oils and greases must be stored and disposed according to antipollution rules.
- On machines equipped with, the hydraulic plant pressure haven't to exceed 2755 PSI.
- When the machine non is not coupled to power takeoff, the hydraulic pipes and the PTO shaft must be placed in the supports provided.





**Be sure that hydraulic hoses are correctly connected and still remembering that their reversing cause opposite movements to those driven.**

Relieve hydraulic pressure before performing maintenance or repairs. Be sure there's no pressure inside hydraulic system. Push and pull the remote cylinders levers in and out several times prior to starting any maintenance or repair work.

### 3.5 Driver equipment and protections

- In order to protect the operator from possible flying debris, stones or other materials, it is recommended to fit two protection grills (1) to the operator's cab (working side), so that the debris thrown by the end tool cannot reach the glass of the cab and break it, causing injuries to the operator (FIG. 3.1).
- It is recommended to fit 1/4 inch sheets of polycarbonate (2) or, as an alternative, a single steel bar 3/8 inch thick under the protection grills (1). They will prevent small stones and fragments from hitting the glass of the cab (FIG. 3.1).
- Attach the machine only to tractors with approved type anti-roll over driving cab (ROPS).
- The operator and all personnel must wear a safety helmet and eye protectors as protection against possible flying material.

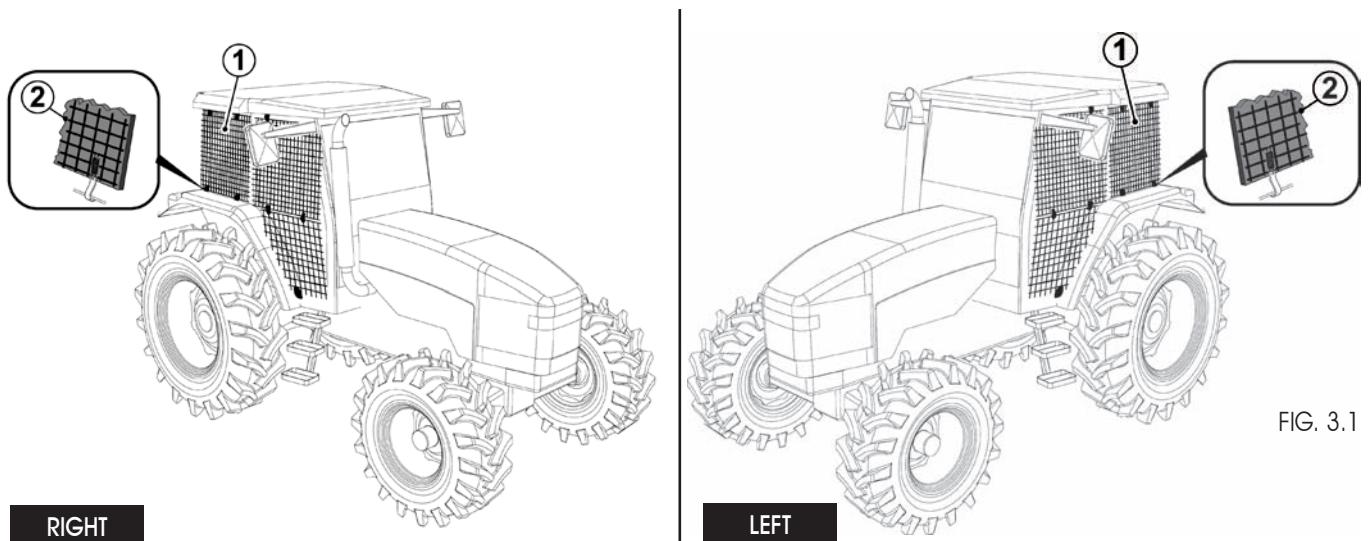


FIG. 3.1

### 3.5.1 Maintenance safety

When leaving the operator's position always follow these good safety operation:

- A) turn off to the machine;
  - B) lower the machine to the ground;
  - C) set the parking brake;
  - D) stop the engine and remove the key.
- Support the machine with blocks or safety stands when working beneath it.
  - Keep service area clean and dry.
  - Be sure electrical outlets and tools are properly grounded.
  - Use adequate light for the job at hand.
  - Use only tools, jacks and hoists of sufficient capacity for the job.
  - Never work on frame, rotor or under the machine unless the tractor engine is off and driveline is disconnected.
  - Make sure all guards are in place, properly secured and in good condition when maintenance work is completed.
  - Never wear ill-fitting, baggy or frayed clothing when working around or on any of the drive system components.
  - Before applying pressure to a hydraulic system, make sure all lines, fittings and couplers are tight and in good condition.
  - Relieve pressure from hydraulic circuit before servicing or disconnecting from tractor. Disconnect all cables from battery of the tractor if it's necessary some welding operations. Keep hands, feet, hair and clothing away from all moving and/or rotating parts.
  - Clean the area of bystanders, especially children, when carrying out any maintenance and repairs or making any adjustments.
  - Periodically inspect all moving parts for wear and replace when necessary with authorized service parts.
  - Do not weld or repair rotating mower components welds and other repairs may cause severe vibration.



**DANGER**

**Never work under the machine or any lifted component unless the machine is securely supported or blocked up to prevent sudden or inadvertent falling which could cause injury or even death.**



**WARNING**

**Never remove material, repair or attempt to lubricate the machine while it's in motion or while tractor engine is running.**

#### **WARNING**



**During use, maintenance, repair, handling or storage of the machine, the operator must wear safety footwear, overalls, safety gloves and, if necessary, earmuffs and a dust mask.**



**WARNING**

**Use a ladder or raised stand to access high spots which cannot be reached from ground level. Slipping and falling can cause serious injury or death. Do not lean the ladder against the machine.**

### 3.6 Operating hazard area

- Objects can be thrown out from under the machine with sufficient force to severely injure people. Stay away from machine when it is running (at least 50 yards). Keep others away.
- Stay out of shaded hazard area.
- Always know where all additional personnel are located when operating the machine. Never allow anyone within the hazard area.

### 3.7 Danger



**Pay special attention when working under or near electric lines, an electric arc may be released (FIG. 3.2).**



**For the max cutting width please refer to TAB2 in chapter 2.**

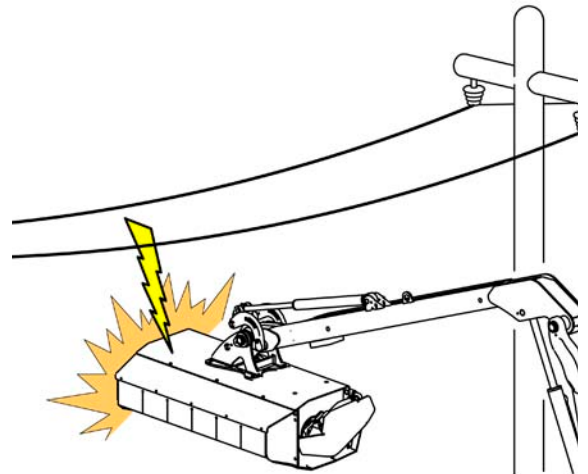


FIG. 3.2

### 3.8 Safety signs

#### 3.8.1 Replacing Safety signs

- Keep safety signs clean and legible at all times.
- Replace safety signs that are missing or have become illegible.
- Replace parts that displayed a safety sign should also display the current sign.
- Safety signs are available from your Distributors or factory.

#### How to install Safety Signs:

- Be sure that the installation area is clean and dry.
- Be sure temperature is above 10°C (50°F).
- Determine exact position before you remove the backing paper.
- Remove the smallest portion of the split backing paper.
- Align the sign over the specified area and carefully press the small portion with the exposed sticky backing in place.
- Slowly peel back the remaining paper and carefully smooth the remaining portion of the sign in place.
- Small air pockets can be pierced with a pin and smoothed out using the piece of sign backing paper.

### 3.8.2 Description and location of the safety decals



Ensure that the safety decals are legible. Clean them with a cloth, soap and water. Change any damaged labels, placing them in the exact position as described below.

The types of safety signs and locations on the equipment are shown in the illustration below. Good safety requires that you familiarize yourself with the various Safety Signs, the type of warning and the area, or particular function related to that area, that requires your SAFETY AWARENESS.

REMEMBER - If Safety Signs have been damaged, removed, become illegible or parts replaced without safety signs, new signs must be applied. New safety signs are available from your authorized dealer.

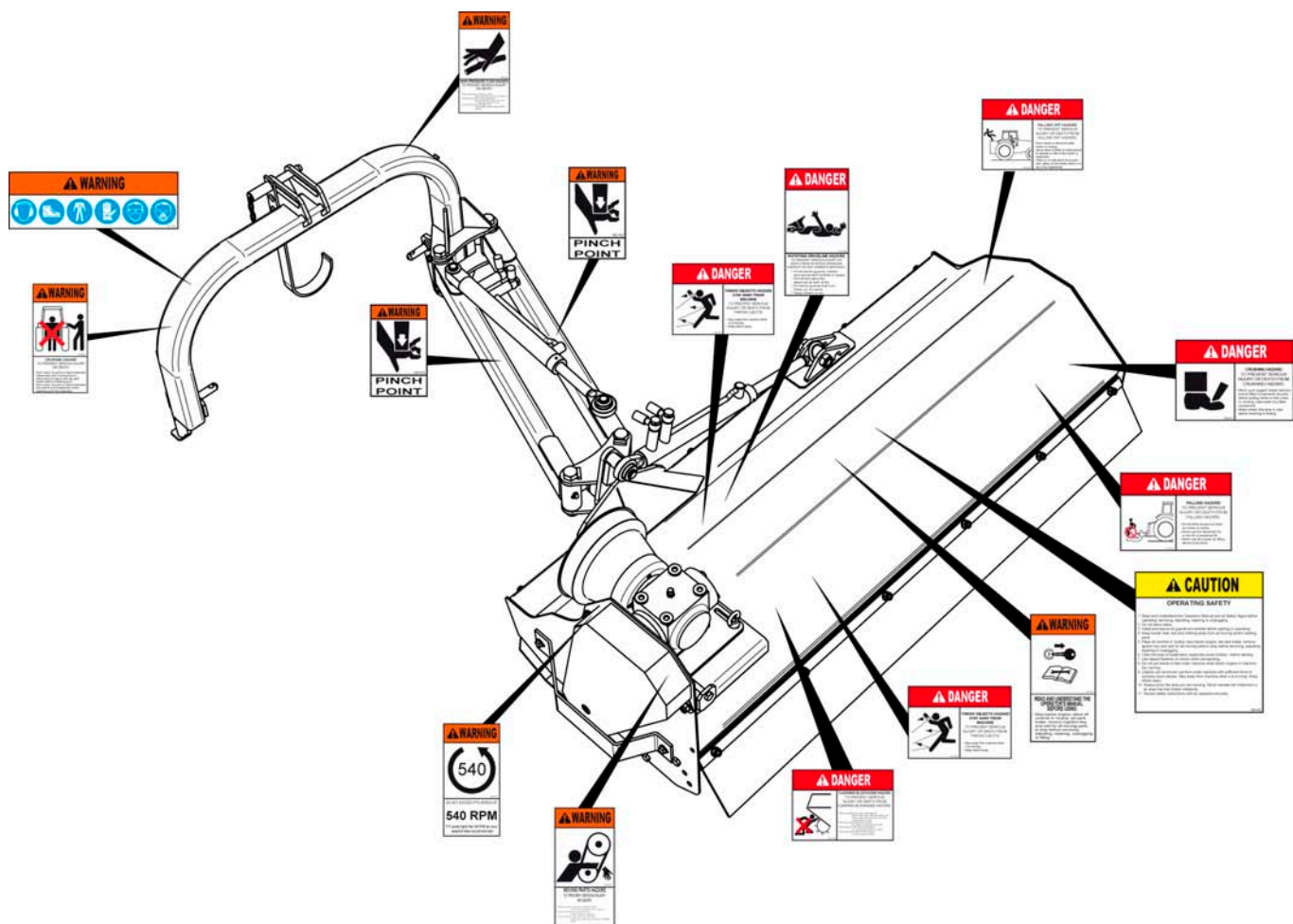












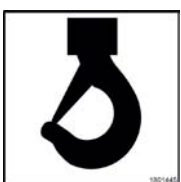



FIG. 3.3

## SAFETY SIGNS

1	 <p><b>CAUTION</b> OPERATING SAFETY</p> <ol style="list-style-type: none"> <li>1. Read and understand the Operator's Manual and all Safety Signs before operating, servicing, repairing, inspecting or maintaining.</li> <li>2. Do not drink alcohol.</li> <li>3. Do not operate while impaired.</li> <li>4. Do not use the machine on uneven or slippery surfaces.</li> <li>5. Do not use the machine on inclines or slopes.</li> <li>6. Do not use the machine on uneven or slippery surfaces.</li> <li>7. Do not use the machine on uneven or slippery surfaces.</li> <li>8. Do not use the machine on uneven or slippery surfaces.</li> <li>9. Do not use the machine on uneven or slippery surfaces.</li> <li>10. Do not use the machine on uneven or slippery surfaces.</li> <li>11. Do not use the machine on uneven or slippery surfaces.</li> </ol>	2	 <p><b>WARNING</b></p> <p>DO NOT EXCEED PTO SPEED OF <b>540 RPM</b></p> <p>PTO speeds higher than 540 RPM can cause equipment failure and personal injury.</p>
3	 <p><b>WARNING</b></p> <p>DO NOT EXCEED PTO SPEED OF <b>1000 RPM</b></p> <p>PTO speeds higher than 1000 RPM can cause equipment failure and personal injury.</p>	4	 <p><b>DANGER</b></p> <p>THROW OBJECTS HAZARD TO PREVENT SERIOUS INJURY OR DEATH FROM THROWN OBJECTS</p> <p>Do not throw any objects from the machine while it is running. Please observe safety.</p>
5	 <p><b>WARNING</b></p> <p>MOVING PARTS HAZARD TO PREVENT SERIOUS INJURY OR DEATH</p> <p>Do not touch or operate any moving parts while the machine is running. Do not touch or operate any moving parts while the machine is running. Do not touch or operate any moving parts while the machine is running.</p>	6	 <p><b>DANGER</b></p> <p>FALLING HAZARD TO PREVENT SERIOUS INJURY OR DEATH FROM FALLING HAZARD</p> <p>Do not climb on the machine while it is running. Do not climb on the machine while it is running. Do not climb on the machine while it is running.</p>
7	 <p><b>DANGER</b></p> <p>CRUSHING HAZARD TO PREVENT SERIOUS INJURY OR DEATH FROM CRUSHING HAZARD</p> <p>Do not touch or operate any moving parts while the machine is running. Do not touch or operate any moving parts while the machine is running. Do not touch or operate any moving parts while the machine is running.</p>	8	 <p><b>DANGER</b></p> <p>ELECTROCUTION HAZARD TO PREVENT SERIOUS INJURY OR DEATH FROM ELECTROCUTION</p> <p>Do not touch or operate any moving parts while the machine is running. Do not touch or operate any moving parts while the machine is running. Do not touch or operate any moving parts while the machine is running.</p>
9	 <p><b>DANGER</b></p> <p>CLEANING BLOCKAGE HAZARD TO PREVENT SERIOUS INJURY OR DEATH FROM CLEANING BLOCKAGE HAZARD</p> <p>Do not touch or operate any moving parts while the machine is running. Do not touch or operate any moving parts while the machine is running. Do not touch or operate any moving parts while the machine is running.</p>	10	 <p><b>WARNING</b></p> <p>Icons representing required PPE: Ear protection, Foot protection, Hand protection, Eye protection, Face protection.</p>
11	 <p><b>DANGER</b></p> <p>ROTATING DRIVELINE HAZARD TO PREVENT SERIOUS INJURY OR DEATH FROM ROTATING DRIVELINE HAZARD</p> <p>Do not touch or operate any moving parts while the machine is running. Do not touch or operate any moving parts while the machine is running. Do not touch or operate any moving parts while the machine is running.</p>	12	 <p><b>WARNING</b></p> <p>PINCH POINT</p> <p>Do not touch or operate any moving parts while the machine is running. Do not touch or operate any moving parts while the machine is running. Do not touch or operate any moving parts while the machine is running.</p>
13	 <p><b>DANGER</b></p> <p>OVERHEAD HAZARD TO PREVENT SERIOUS INJURY OR DEATH FROM OVERHEAD HAZARD</p> <p>Do not touch or operate any moving parts while the machine is running. Do not touch or operate any moving parts while the machine is running. Do not touch or operate any moving parts while the machine is running.</p>	14	 <p><b>DANGER</b></p> <p>OVERHEAD HAZARD TO PREVENT SERIOUS INJURY OR DEATH FROM OVERHEAD HAZARD</p> <p>Do not touch or operate any moving parts while the machine is running. Do not touch or operate any moving parts while the machine is running. Do not touch or operate any moving parts while the machine is running.</p>

## SAFETY SIGNS

15		16	
17		18	
19		20	
21			



## 4 INSTRUCTIONS FOR INSTALLATION AND HANDLING

### 4.1 Lifting

For transport reasons, the machine is supplied with some components dismantled and some pre-assembly operations must be performed (see following paragraph) before it can be installed on the tractor.



**WARNING**

**To lift the machine use safety hooks and cables with a suitable lifting capacity, to be inserted only in the points indicated for lifting, identified by the decals applied on the machine (FIG.4.1).**

The machine may also be placed on a wooden board and suitably anchored to it. The subsequent handling of the machine must be carried out exclusively by means of a fork-lift truck. It is good practice to have this operation carried out by qualified and suitable trained personnel (sling operators, fork-lift operators, eec.). When lifting the machine, pay attention to possible movements of the third point connection (1) with respect to the machine itself.



**WARNING**

**Lifting is a delicate manoeuvre, always carried out at the user's risk.**

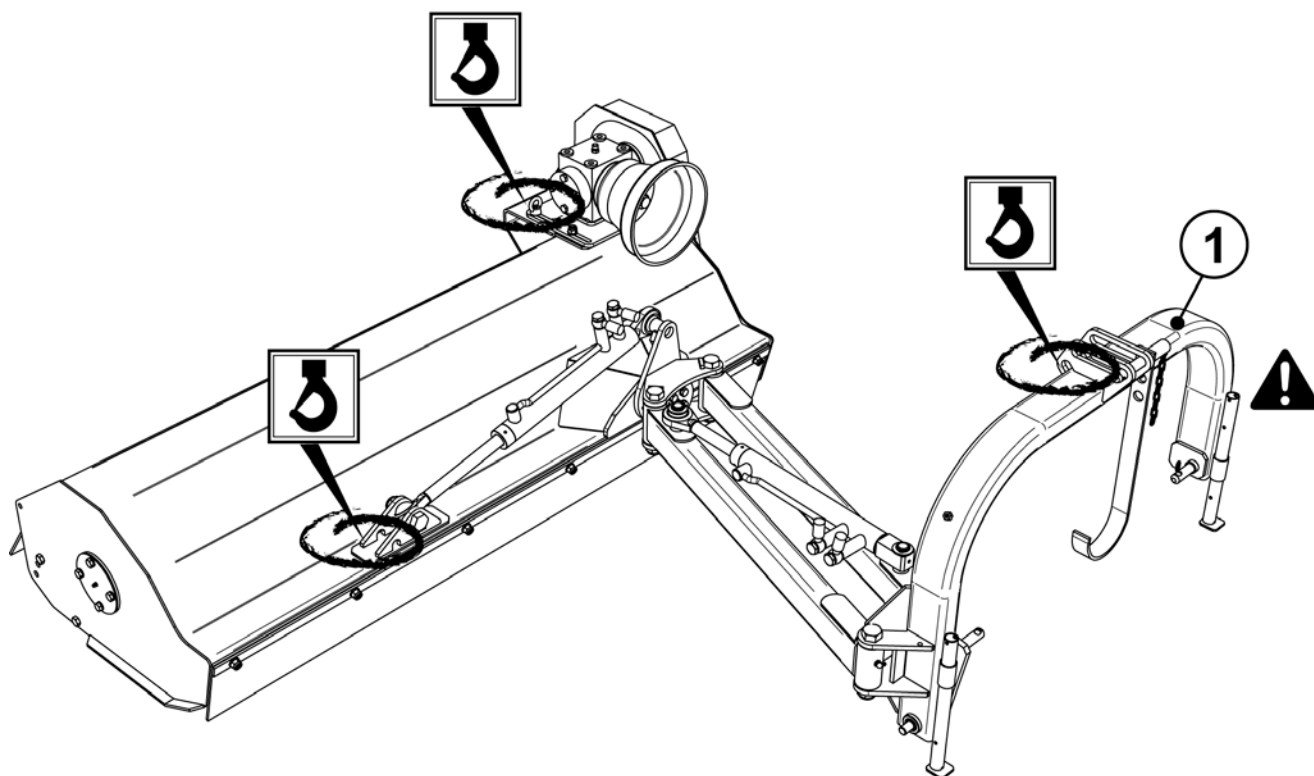


FIG. 4.1

## 4.2 Removing packaging

For machine transport reasons, it has been necessary to prepare special packaging which requires some pre-assembly operations before the machine can be installed on the tractor.



**WARNING**

**FOR SAFETY REASONS IT IS STRICTLY FORBIDDEN TO USE THE MACHINE IN CONDITIONS OTHER THAN THOSE RECOMMENDED**

In order to carry out the movement and installation operations of the machine safely, it is necessary to use a fork-lift truck and/or a hoist with sufficient capacity to manage the weight of the machine.

### Assembly operations:

The machine is supplied anchored to a wooden board with metal wires, positioned crosswise and resting on the rear roller, in order to guarantee sufficient stability.

Packaged machines must be moved only by fork-lift truck.



**WARNING**

**It is good practice only to allow qualified or appropriately trained staff (sling operators, fork lift operators, etc.) to carry out this handling operation.**

- Place the package on a flat dry surface.



**During use, maintenance, repair, handling or storage of the machine, the operator must wear safety footwear, overalls, safety gloves and, if necessary, earmuffs and a dust mask.**

- Use a hoist or crane and the respective cables or chains with load capacity adequate to the weight of the machine to lift and move it. Before removing the wire that bonds the various machine disassembled parts together, make sure that all such parts are safely fastened to a hoist by means of bands in order to make sure that they will not fall to the ground during unpacking.

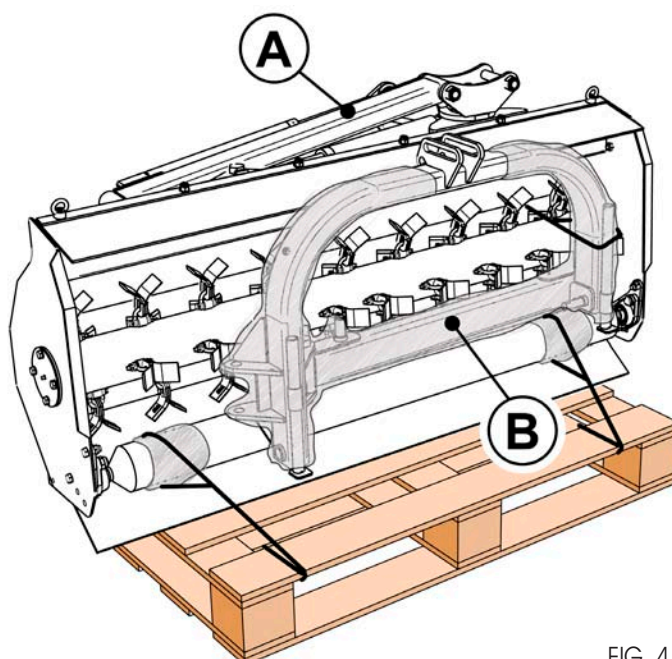


FIG. 4.2



- Fasten the third point arc in place using a strap or chain of adequate load capacity before cutting the fastening wire applied. Keep the strap or chain tight in order to prevent the part from falling. Whenever chains are used, insert the lifting hook into the hole (C) provided in the third point arc. Connect the third point arc, lift it up, and then lay it flat on the ground in a safe position that will not interfere with machine assembly operations.
- Then remove the packaging from the arc, which also contains a rotation arm (B) that must be fastened to the machine rotation attachment with an arm already assembled (A) (see FIG.4.2.).

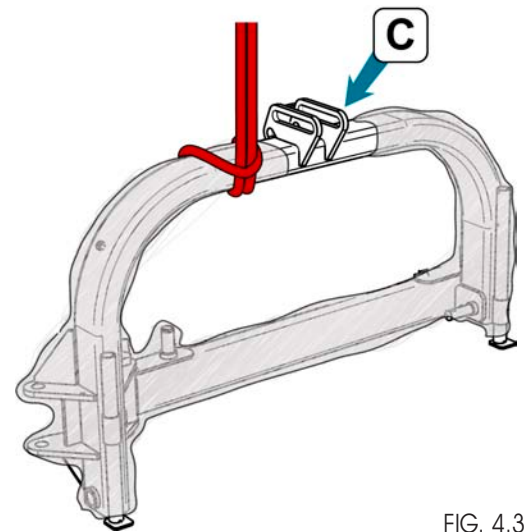


FIG. 4.3

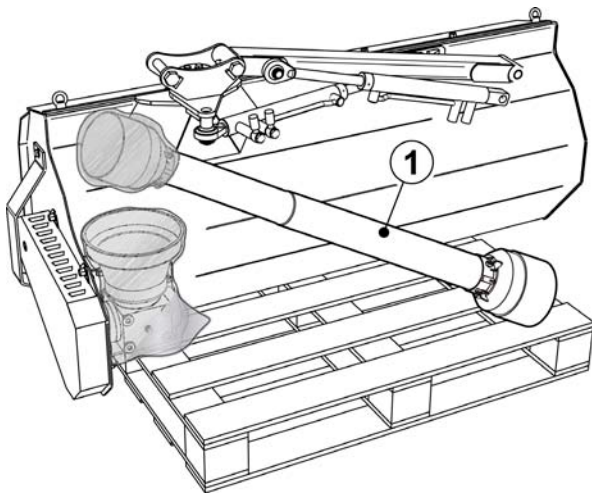


FIG. 4.4

- Remove the PTO (1) resting against the machine and wired to the same. For packaging reasons, the part that slides out has been removed from the PTO shaft, which for this reason is divided into two components. Before cutting the wire, fasten the two PTO components using straps (or chains) of adequate load capacity to a hoist in order to reduce the risk of the parts falling accidentally to the ground. Position both parts on the ground in a safe place where they will not cause obstruction during machine assembly operations. Take the part that slides out of the PTO shaft and insert it inside the PTO shaft.

- Fasten the machine to a hoist by connecting lifting chains to the corresponding eyebolts (D) indicated by the arrows in FIG. 4.5. The eyebolt in the gearbox plate can be used as a 3rd lifting point (E) and the correct horizontal positioning of the machine.
- **Connecting the machine to any other lifting points is extremely dangerous.**

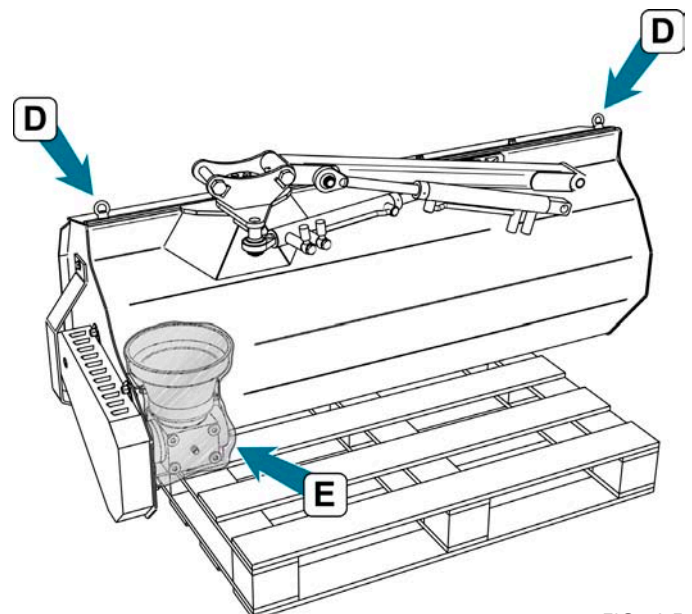


FIG. 4.5

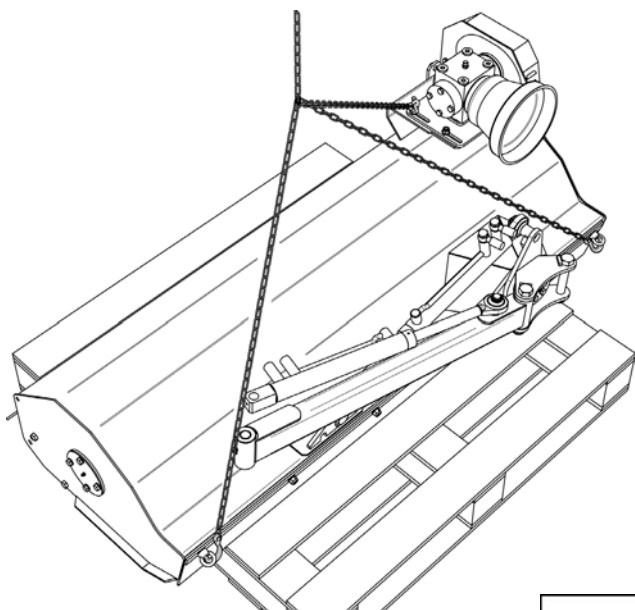


FIG. 4.6

- While the machine is fastened by chains (or straps) to a hoist, cut away all the wire that has been used for the fastening of the machine and its parts on the wooden platform.
- Remove the package using the right equipment for the assembly of the machine.
- Lift the machine with a hoist of adequate load capacity, shift it away from the wooden platform and then lower it slowly.
- With this type of fastening (FIG.4.6) the machine tends to position itself horizontally and can then be placed carefully on the ground.

- Remove the eyebolts (2) located in the front part of the rubberized canvas protection, and then fasten the rod in place using the M10 nuts (3) provided (FIG.4.7).

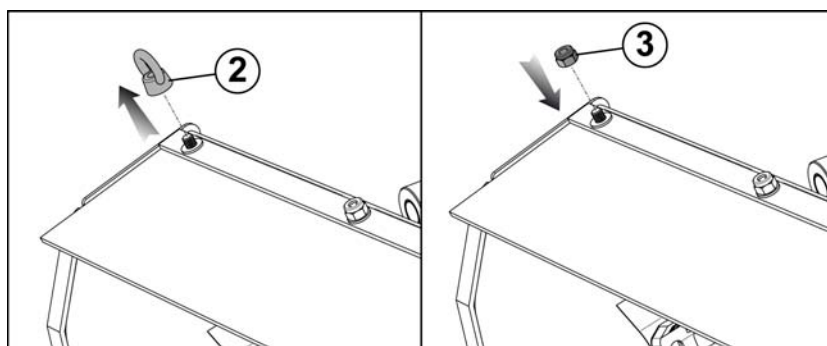


FIG. 4.7

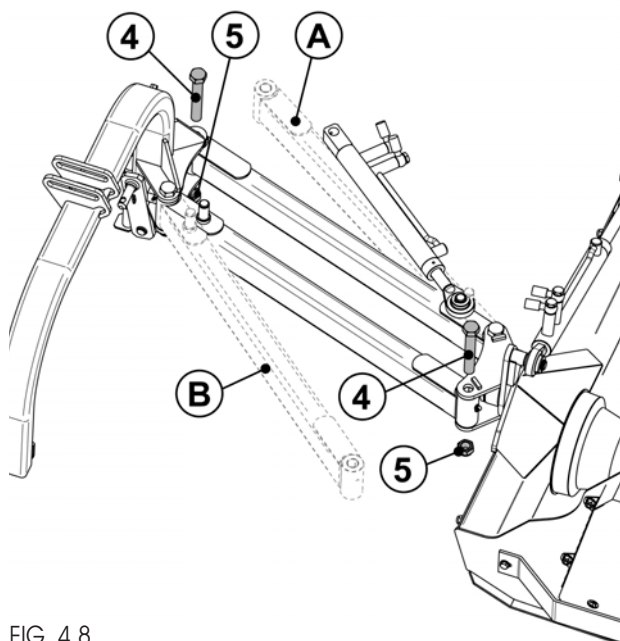


FIG. 4.8

- Open the arm (A) with help from a hoist attached to the arc. During this arm assembly operation (B), keep the arc tightly fastened to a hoist using chains (or straps). Remove the pins (4) from the arm housings on the shredder rotation attachment and the arc attachment. Insert the arm inside the arc attachment and the shredder rotation attachment and then insert the respective pins (4) and nuts (5).

- Assemble the arm movement hydraulic ram in the corresponding pin in the arm (B), and then insert the flat washer M22 (6) and the snap-ring 22 (7) provided (FIG.4.9).

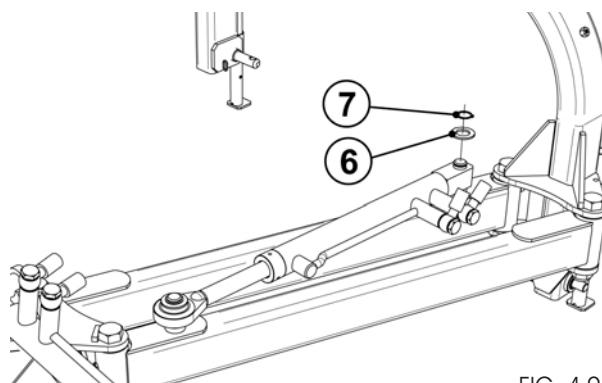


FIG. 4.9

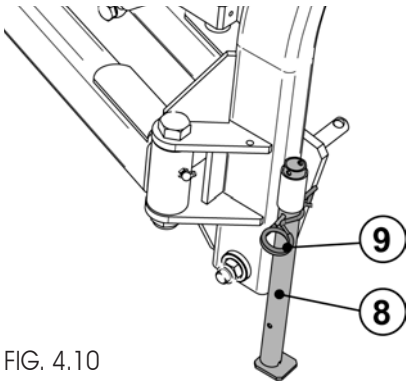


FIG. 4.10

- Arrange the hydraulic hoses (11) for the flail head rotation ram (10) as shown in the figure by passing them on the arm (A) and then fastening them in place using the respective hose clamps (12) provided.

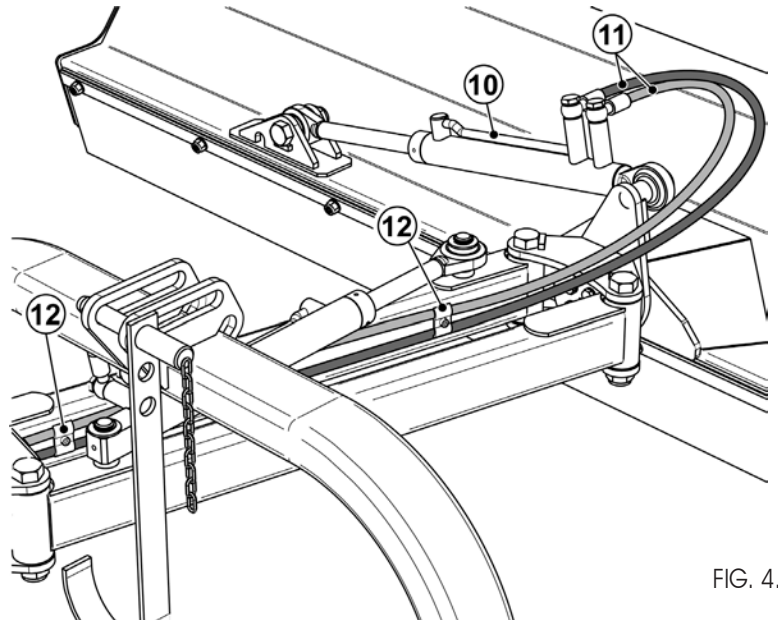


FIG. 4.11

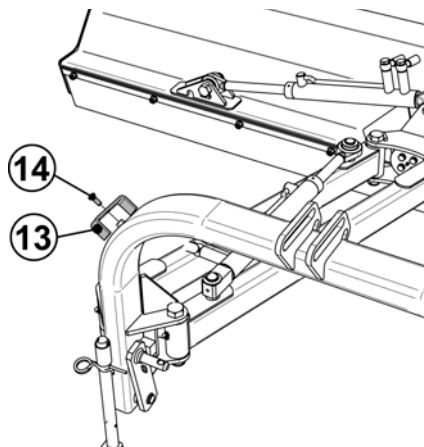


FIG. 4.12

- Fasten the two arm hydraulic ram hoses and the flail head rotation hydraulic ram hoses coming from the third point arc using the respective hose clamps (13) and screw (14) provided.

- Using the pin, insert the corresponding support (15) to be used when the machine is parked into the PTO.

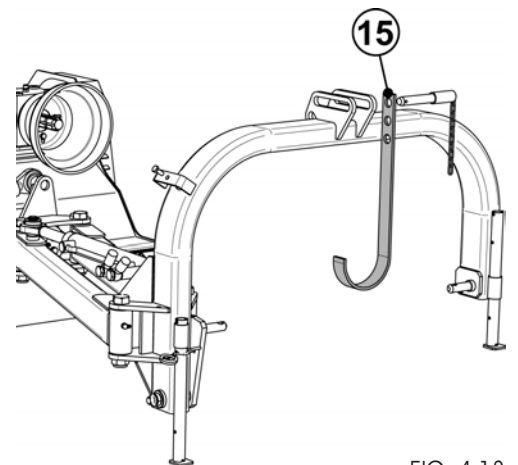


FIG. 4.13



CAUTION

FERRI do not accept responsibility for the damage caused by incorrect assembly of the parts described above.

## 4.3 Attachment to and detachment from the tractor

All FERRI SHREDDERS machines may be attached to any type of tractor equipped with a three-point universal coupling. Light the work area well in the event of poor visibility and make everyone stay at least 5 metres away from the coupling point.



**DANGER**

**Before anyone attempts to connect or disconnect the machine and tractor hitches shut down the tractor, set the parking brake.**



**WARNING**

**During use, maintenance, repair, preparation for the road and storage of the machine, the operator must wear accident-prevention footwear, safety gloves, ear muffs, working goggles and a dust mask to protect himself from any projected or falling objects due to machine operation. Position the tractor on a level area to avoid lateral loading of the stabilisers.**

- Before connecting the machine to the three-point coupling on the tractor, position the safety device of the lifting arm so as to make involuntary and/or accidental lifting or lowering impossible.
- The three-point coupling on the tractor and the tool must coincide or be adapted.  
In the area of the linkages of the arms of the rear lifting device of the tractor there is the risk of injury due to crushing and cutting points: attach and detach the machine exclusively on compact, level surfaces



**DANGER**

**In the area of the linkages of the arms of the rear lifting device of the tractor there is the risk of injury due to crushing and cutting points. Do not use the external control for lifting the tool.**



**CAUTION**

**Do not allow anyone to stand between the tractor and the implement when backing up to the machine verso la macchina da agganciare. Do not allow anyone to stand between the Implement and moving tractor. Stop tractor engine and set park brake before installing pins.**

### Attaching Without a Quick Hitch:

- Bring the tractor close to the machine until the 2 arms of the hydraulic lift of the tractor (1) coincide with the shredder at the level of the couplings with pins.
- Insert the arms of the lift in the pins (2) and lock with the respective safety split pins (3).
- Fit the third point stabilizer (4). Raise the machine and regulate until the third point arc (7) is perpendicular to the ground. Stiffen the 2 arms of the lift with the respective stabilizers (5), positioning the machine in the centre.
- Raise the support foot (6). Be sure retainers are used on all mounting pins.
- Connect the hydraulic ram control oil pipes to the tractor, taking care not to invert the pipes during assembly (see par. 4.3.1).
- The machine is designed to be unplugged easily. Be sure to place all controls in neutral, stop tractor engine, set park brake, remove ignition key and wait for all moving parts to stop before unplugging.

### Attaching with a Quick Hitch:

- Set the height of the 3 point hitch so the Quick Hitch claws are lower the mounting pins.
- Be sure the 3 mounting pins and their retainers are installed.
- Align the claws under the mounting pins while backing up.
- When the claws are under the pins, slowly raise the 3 point hitch. Be sure each of the mounting pins seat in their respective claw.
- Engage claw locks.

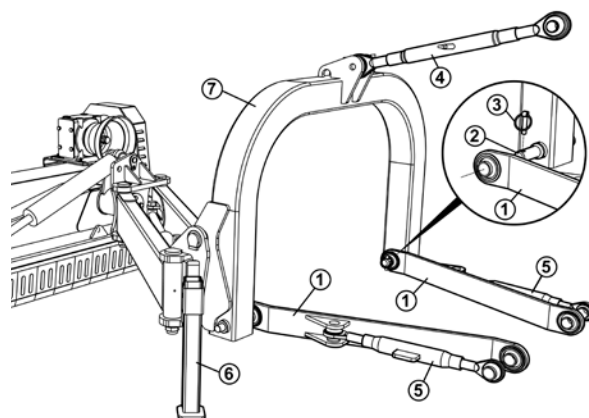


FIG. 4.14





CAUTION

Insert and block the safety pins in the pivot hole and ensure that they are blocked. Block the anti-unscrewing device of the third point.



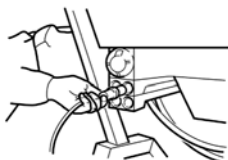
DANGER

Never operate if front or rear of flail head is tilted upward. The flail head should be operate parallel to the ground at all times.

Reverse the above procedure when unhooking from the tractor.

#### 4.3.1 Hydraulic connections for lateral movement

- Switch off the engine (if running), pull the hand brake and take the keys out of the ignition.
- Check that there is no pressure in the tractor hydraulic system.
- Connect the quick coupling hydraulic pipes to the tractor after having checked that all the connections are clean and in an excellent state of repair.



Ensure that the hydraulic pipes are correctly fitted, respecting the colour recognition code and remembering that inverting them causes opposite movements to those ordered with the controls.

- Put the hydraulic system under pressure, check that there are no leaks and that the connection is correct.
- If you find a leak, take all the precautions to avoid accidents.
- Do not use hydraulic pipes as gripping points.
- Pressurised liquids, especially the oil of a hydraulic circuit, may cause severe injuries and produce infections: in the event of accidents, consult a doctor.
- As soon as the shredding operations are finished, the hydraulic pipes unfastened from the tractor must be fixed to the supports provided.
- Use a clean cloth or paper towel to clean the tips on the end of the hoses and the area around the couplers on the tractor.
- Insert the male ends into the couplers on the tractor. Be sure they are locked in place.
- Provide sufficient slack for raising.

Hydraulic pipe identification codes	
<b>A</b>	2 YELLOW bands
<b>B</b>	1 YELLOW band
<b>C</b>	2 GREEN bands
<b>D</b>	1 GREEN band

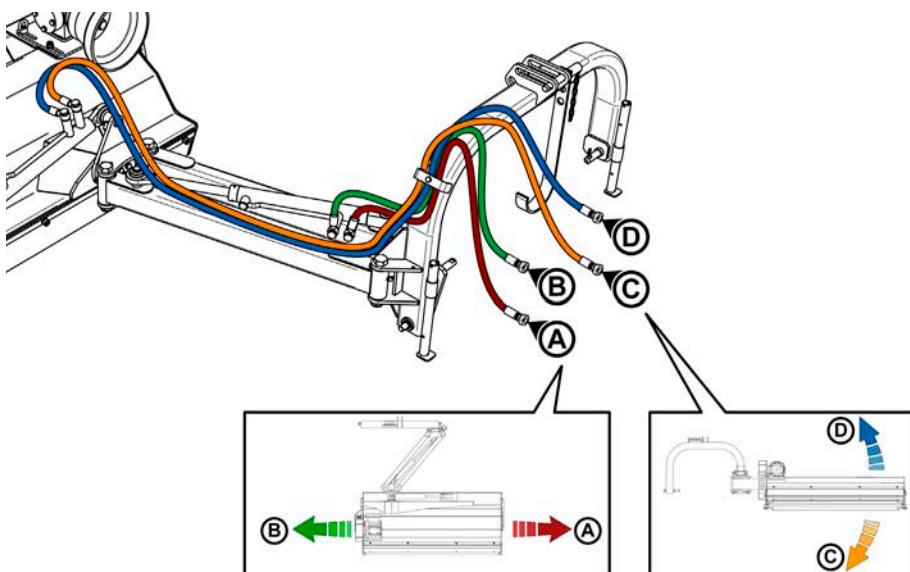
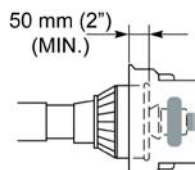


FIG. 4.15

- Before any intervention on the hydraulic system, stop the tractor engine and remove pressure from the circuit.
- To carry out maintenance on the hydraulic system, use personal protection equipment (gloves, accident-prevention footwear, etc.).
- Do not dispose of old oil or grease residue in the environment, but consign them to special collection centres.

## 4.4 Fitting the PTO shaft

Before using the PTO shaft, consult the use and maintenance manual supplied with it.



If the PTO shaft supplied with the machine is not being used, check that the cowlings of the machine and of the tractor are overlapped on the protection of the PTO shaft at least by the amount contemplated by the safety regulations in force (2").

### IMPORTANT

It's not recommended that shaft adaptors be used on the tractor shaft to prevent operating at the wrong RPM.

Do not exceed a driveline angle of 15°. Operating at more than 15° will reduce the driveline life by 75% and void the warranty.

Cut only the male end. Never cut the female end.

### IMPORTANT

If different tractors are used on implement that are configured different (with and without Quick-Hitch), it will be necessary to use a different driveline. A Quick-Hitch will change the distance between the tractor shaft and implement shaft. Measure be sure.

- Transport the PTO shaft in a horizontal position in order to prevent potential disengagement causing accidents or damaging the protections.
- Clean and lubricate the power takeoff.
- If necessary, grease the PTO shaft complying with the indications supplied by the PTO manufacturer (see PTO Use and Maintenance Manual).
- Fit one end of the shaft onto the machine gearbox assembly, respecting the direction of assembly required by the manufacture and indicated on the outer covering of the protection (FIG.4.16), and on the other onto the tractor power takeoff.
- Fasten the protections of the PTO shaft with chains to the shredder and to the tractor to prevent their rotation.
- Ensure that the anti-removal safety block (button) is correctly inserted and blocked in its housing.
- The overlap between cowlings and PTO shaft must not be less than 5 cm.

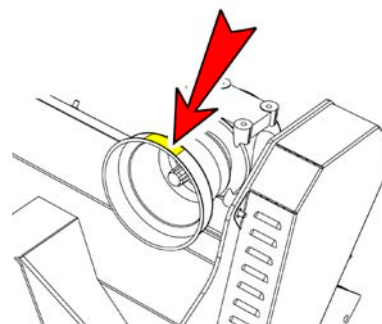


FIG. 4.16



CAUTION

Check the direction of rotation and the number of revs (540 rpm) of the tractor p.t.o. before fitting the PTO shaft.

By using the tractor hydraulic lift, place the machine in the closest point between the respective PTO shafts and check that the PTO length is correct. Check that the length of overlap between the shaped pipes is not less than 2/3 of the stroke with the PTO shaft closed. Otherwise, cut the excess part of both the telescopic pipes (A) and the guards (B) (see FIG.4.17).

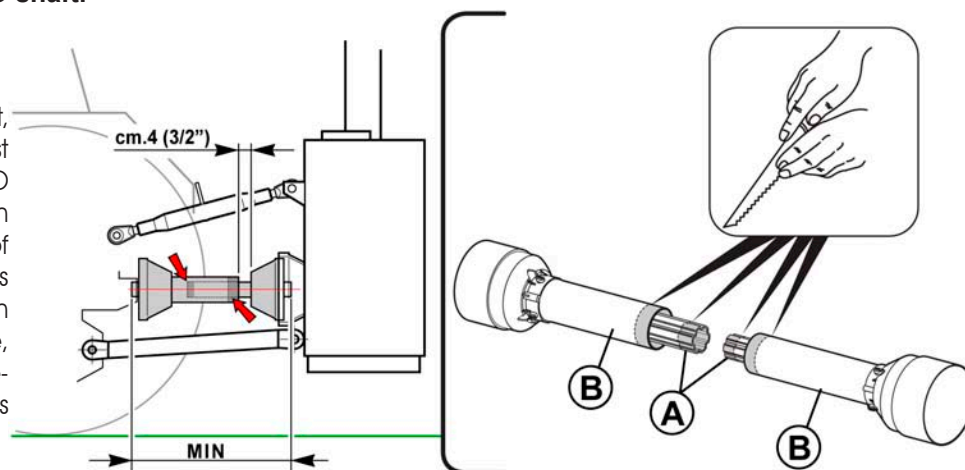


FIG. 4.17

To connect the machine driveline to the tractor PTO output shaft, pull the driveline yoke collar back and align the grooves and splines of the yoke with those of the PTO shaft. Push the driveline yoke onto the PTO shaft, release the locking collar, and position the yoke until the locking collar is securely attached to the PTO shaft. Push and pull the driveline back and forth to ensure a secure attachment.

- check that the driveline telescopes easily and that the shield rotates freely.



CAUTION

**If the driveline does not telescope easily, pull it apart and clean the splines and re-insert ends. Be sure the yokes are phased and the splines mate properly. If the shaft does not telescope easily, the splines are not aligned. Forcing the shaft together will damage it.**

- Attach the driveline to the tractor by sliding the collar back to retract the locking pin and slide the yoke over the tractor shaft until the lock pin clicks into position. Be sure the yoke is locked in position.

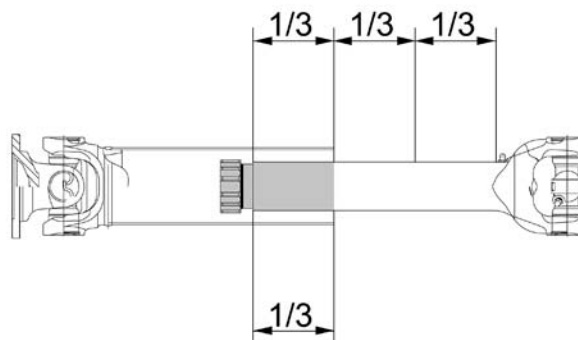


CAUTION

**Before getting off the tractor and before each operation, apply the parking brake, switch off the p.t.o., switch off the engine and remove the ignition key from the dashboard.**

It must be remembered that the semi-shafts of the PTO shaft must be overlapped by at least 1/3 of their length in the maximum pulled-out position, and that they have a free span of at least 10 cm in the maximum pushed-in position.

- Always stop the power takeoff when lifting the tool or when the manoeuvring angles are too large.



CAUTION

**The PTO shaft must always be connected last to the tractor PTO and disconnected first at the end of work.**

For correct and safe operation of the machine, use exclusive PTO shafts bearing the CE mark.

Use only PTO transmission shafts with unbroken protections.

The length of the PTO shaft must be suited to the type of tractor used.

When the PTO shaft is detached from the tractor power takeoff, it must **ALWAYS** be placed on the support provided.



CAUTION

**FERRI does not accept responsibility for damage caused by incorrect assembly and use of the PTO transmission.**

**PTO Shaft:**

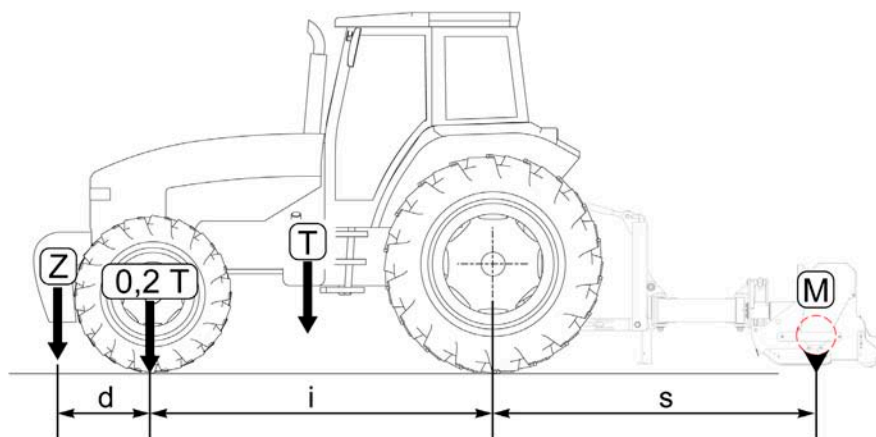
**The tractor PTO shaft must meet these specifications:**

**6 spline, 1 3/8 inch dia.**

## 4.5 Tractor stability

Check the lifting capacity and the stability of the tractor by means of the following formula and add ballast at the front if necessary.

To determine the total weight of the machine you must add the weight of all the components (see paragraph 2.3).



$$M \times s \leq 0,2 T \times i + Z(d+i)$$

$$M \leq 0,3 T$$

i	=	tractor wheel base
d	=	distance of front axle from ballast
s	=	overhang of the rear axle of the machine tool
T	=	mass of the tractor + 75 kg (operator)
Z	=	mass of ballast
M	=	mass of the fully loaded machine



**WARNING**

The front axle of the tractor is lightened in relation to the weight attached at the time of coupling to the shredder/mower: **THE LOAD ON THE FRONT AXLE MUST BE AT LEAST 20% of the total mass tractor/equipment ready to be used.**

It is obligatory to check the lifting capacity and the stability of the tractor to avoid its tipping and/or losing the grip of the steering wheels.

Lift the shredder completely and check that the tractor does not pitch. If necessary, ballast the tractor rear wheel opposite to the extended arm.



**CAUTION**

Do not work with the arms extended with the tractor sitting on sloping ground. During transport, move the shredders into central position.



## 4.6 Field operation

Before starting, the operator has the responsibility of being familiar with all operating and safety procedures and following them.

Each operator should review this section of the manual at the start of the season and as often as required to be familiar with the machine. When using, follow this procedures:

- preparation, operation and safety procedures of the machine before putting it into use (see par.3.3, 4.5, 6.2 and 6.3).
- hooking up procedure of the machine to the tractor (see par.4.3).
- installation procedure of the PTO shaft (see par. 4.4).
- transport and road procedures in conformity with local regulations (see par.3.2 and 6.5).
- operative procedures relative to start-up and work (see par.6.2 and 6.3).

### Set Machine:

- Lower 3 point hitch until the rotor just clear the ground and the rotor is horizontal.
- Place the 3 point hitch in position and lock it.

### Starting:

- Run the tractor engine at low idle. Place the machine in working position on the ground with the command lever on the tractor.
- Slowly engage the PTO lever to start the rotor.
- Slowly bring throttle up and start moving tractor at 1-2 km/h

Never exceed rated speed.

Once PTO is engaged and tractor RPM's are low, start driving ahead and gradually higher RPM.

### Machine placement in working position:

Follow this procedure when placing the implement into its working position:

- Clear the area of bystanders, especially small children, before starting.
- Be sure there is enough clearance from other equipment to move the machine into its working position.
- Check that all guards are in place and working as intended.
- Always move the implement in transport position when not in use, and disengage the PTO.
- Use the control levers's tractor in combination to maneuver the head in working position.
- Refer to Operating Section to start-up procedure.
- Reverse the above procedure when removing the machine from its working position.

### Stopping machine:

- Slowly decrease engine speed to low idle.
- Disengage all controls.
- Disengage PTO clutch slowly. The rotor will continue to rotate for a short time (max. 30 s.)
- Use the 3 point hitch to raise the machine to the ground.

### Machine Hazard Area:

Stay away front the fron, side and behind the machine when it is running. Keep others away. The blades can pick up stones, sticks, wire and other debris and throw it out with enough force to severely injury bystanders.

Shut down machine and wait for moving parts to stop before approaching machine.

## 4.7 Parking or storage

If the machine is to remain immobilised for long periods, it must be stored in a place sheltered from atmospheric agents and protected to avoid the accumulation of dust.

- Pull out and fix the support foot and position the machine on a flat surface (FIG.4.18);
- Clean the machine with care, in order to remove debris, dirt or mud left on the machine;
- Make a general visual check of the machine to identify any structural lesions, find any deep abrasions on the paint, check that the original safety decals are present in their positions and are whole and legible;
- If any lesions, abrasions or damage are found, make the necessary repairs: if necessary, replace any damaged decals immediately;
- Grease all the mechanical parts, the tightening pins, the coupling head to the PTO shaft (see Chapter 7 "Maintenance"). Make sure that all grease cavities have been filled with grease to remove any water residue from the washing. This also protects the bearing seals.
- If possible, put the machine away in a covered place and place the machine firmly on wooden boards;
- Cover the machine with a tarpaulin, tying it suitably.
- Check that all flails and supports are intact and check their general condition. If these parts are worn, make sure you replace them (see par. 8.6).
- Inspect all hydraulic hoses, lines, couplers and fittings. Tighten any loose fittings. Replace any hose that is badly cut, nicked, abraded or is separating from the crimped end of a fitting.
- Touch up all paint nicks and scratches to prevent rusting.
- Unhook from tractor (see section ...)

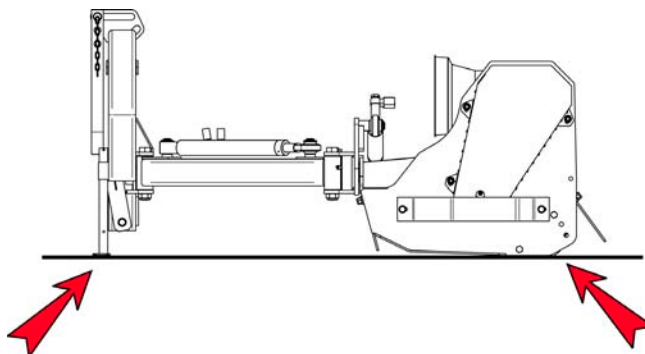


FIG. 4.18

The recovered old oil must not be disposed of in the environment; according to the laws in force, it is classified as special waste and as such it must be consigned to special collection centres. Apply to the nearest Consortium for the disposal of old oil.



**Before putting it away, the whole machine must be cleaned accurately and all the mechanical parts adequately lubricated to protect it from rust.**

**CAUTION**

### 4.7.1 Storage safety

- Store the unit in an area away from human activity.
- Do not permit children to play on or around the stored machine.
- Store the unit in a dry, level area. Support the frame with planks if required.

## 4.8 Machine start up after a long parking period

If the machine has been unused for a long period of time, it is necessary to follow a specific procedure to start it up properly.

- Make a general visual check of the machine to identify any structural lesions, find any deep abrasions on the paint, check that the original safety decals are present in their positions and are whole and legible;
- If any lesions, abrasions or damage are found, make the necessary repairs: if necessary, replace any damaged decals immediately;
- Grease all the mechanical parts, the tightening pins, the coupling head to the PTO shaft (see Chapter 7 "Maintenance").

## 5 ADJUSTMENTS

### 5.1 Adjusting the cutting height



CAUTION

Position the tractor on a level area to avoid lateral loading of the machine on the stabilizers. Before adjusting, turn off the engine, pull the hand brake, switch off the power takeoff and take the key out of the ignition.



DANGER

Never work under the machine or any lifted component unless the machine is securely supported or blocked up to prevent sudden or inadvertent falling which could cause serious injury or even death.

A correct adjustment of the machine working height allows you to do jobs in a workmanlike manner and allows improved performance of the machine - tractor assembly.

By adjusting the height of the support roller it is possible to vary the cutting height.

**The flails must never touch the ground.**

Keep the shredder in horizontal position; the optimum height adjustment is obtained by regulating the height of the support roller depending on the cut you want to obtain (FIG. 5.1):

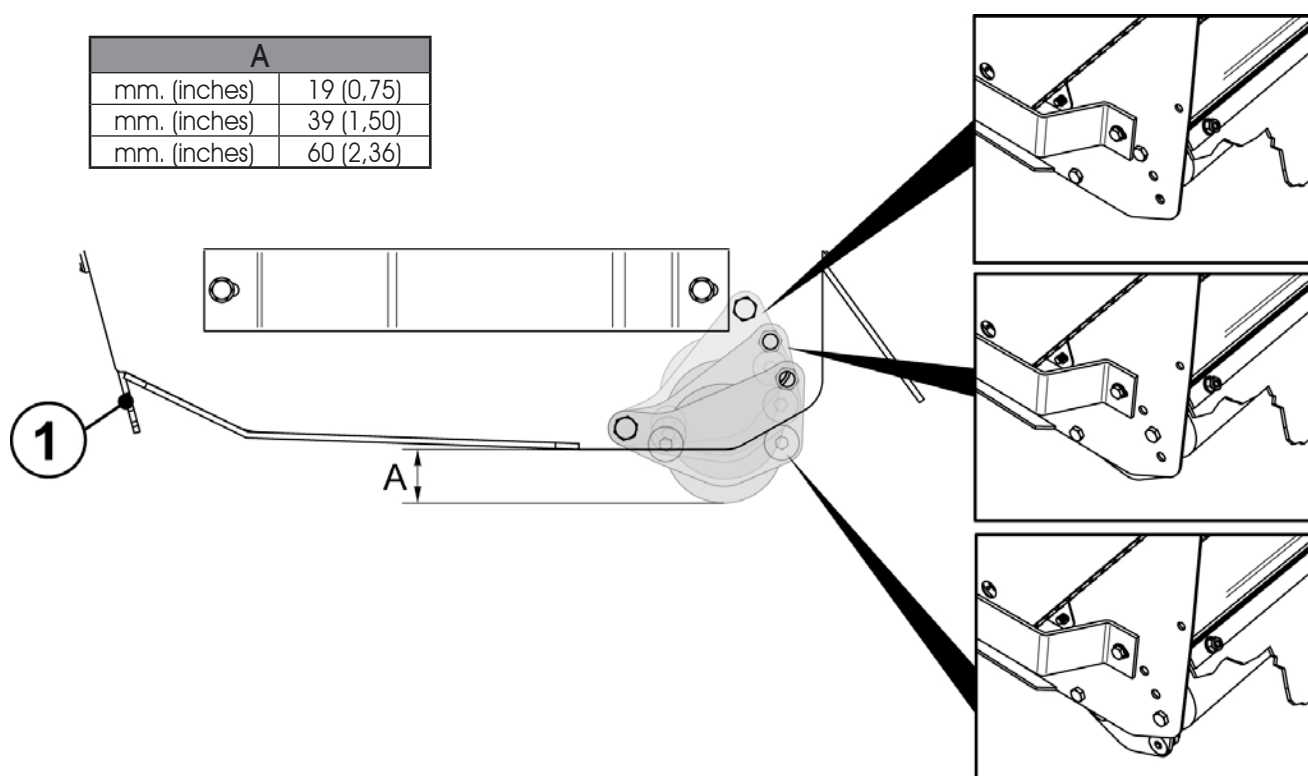


FIG. 5.1



CAUTION

Pay attention during adjustment, to prevent the guards (1 - FIG. 5.1) being too far from the ground when the machine is in use, thus losing effectiveness in holding back any solid bodies thrown up by the rotating flails.

## 5.2 Working speed adjustment

Safe working speed depends on terrain condition, grass type to be cut, density, height of cut and the degree of chopping required.

**In any case the optimum speed ranges from 3 to 8 km/h.**

## 5.3 Adjusting the belt tension

This operation must be carried out with the shredder resting on the ground, with the power takeoff disconnected, the hand brake applied and the key out of the ignition.

- Remove the lateral protection (1).
- Remove the belt protection casing (2).
- Loosen the 3 nuts (3) and the eyebolt (4) that lock the gearbox.
- Adjust the stabilizer (3).
- Adjust until you reach a belt tension that gives a max movement of 15mm in the middle of the upper belt with a 100N pression (measure with a dynamometer in the middle of the upper belt).
- After completing the operation, tighten the 3 nuts (3) and the eyebolt (4) that lock the gearbox and reassemble the belt protection casing (2) and the lateral protection (1).

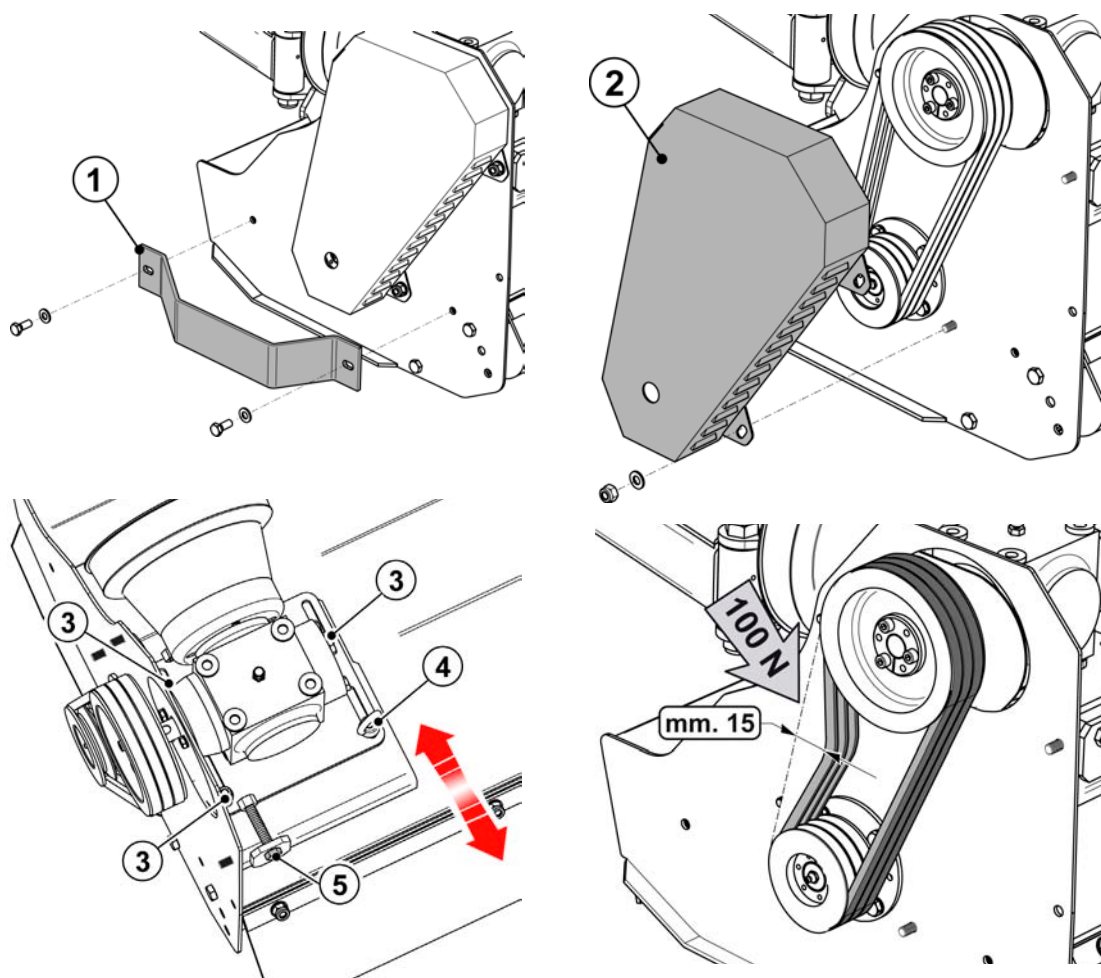


FIG. 5.2



**A correct belt tensioning allows a better performance of the machine and avoid skidding problems with possible break of the belts.**  
**In case the belts are tensioned too tight, there may be overheating problems with possible break of the bearings and a premature belts wear.**

## 6 USE AND OPERATING RULES

### 6.1 Controls

The levers that control the hydraulic rams of the shredder are located in the cab and are an integral part of the tractor, from which the machine takes hydraulic power for operation.

With reference to the following figure (FIG. 6.1):

- the hydraulic ram (1) controls the orientation of the shredder;
- the hydraulic ram (2) controls the lateral movement of the shredder.

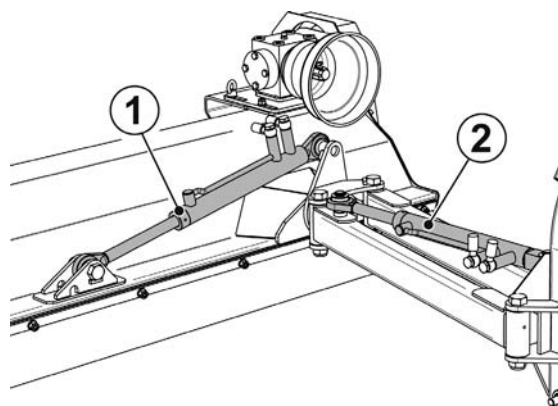


FIG. 6.1

### 6.2 Starting

Set the tractor engine speed at 1000/1200 rpm. Engage the PTO control and slowly increase the engine speed until the PTO is operating at 540 rpm (or 1000 rpm if required). If there's unusual noises or abnormal vibration disengage the PTO. Before operating with the machine determine the cause of the vibration or noise and repair.



During use, maintenance, repair, handling or storage of the machine, the operator must wear accident-prevention footwear, overalls, safety gloves and, if necessary, ear muffs and a dust mask.



**DANGER**

#### IMPORTANT WARNING:

Before starting working with the shredder it is absolutely indispensable to check that all the GUARDS are perfectly whole and in working order.

Blocked, deformed and/or damaged GUARDS must absolutely be repaired in order to guarantee maximum operating safety and to protect persons and/or things from injury by thrown objects.

If he fails to do so, the user is held responsible for any civil and penal damage that may ensue.



**DANGER**

Before using the machine, ensure that there are no persons or animals within a radius of 50 yards.

Do not start the machine while in the grass to be cut. Allow the cuttershaft to develop full speed before cutting.



**CAUTION**

Before use, check the oil level in the driving unit and top up if necessary to optimum level (for this operation follow the instructions in Chapter 7).

Before starting work it is necessary to check that all the screws are tight and ensure all the guards are unbroken; then proceed to adjust the machine, so as to obtain an optimum work position (see Chapter 5). Check that the speed and the direction of rotation of the tractor power takeoff are the same as required by the shredder (see the decal on the gearbox).

Mover forward a short distance and check that the work obtained is satisfactory; if not, the machine regulations must be adjusted. Switch on the power takeoff with the tractor at a low speed (without forcing), to avoid damaging the driving parts (gears and belts).

Use all the controls progressively to make the machine operate gently.

### 6.3 Working mode



**WARNING**

**In the event of clogging due to material on the rotor (forage, vine branches, etc.), before getting off the tractor and before any operation, activate the parking brake, switch off the engine, remove the ignition key from the dashboard and wait until all the moving parts have stopped.**



**WARNING**

**In the operation of extending and closing the arms, lift the shredder slightly from the ground, to avoid damage to the structure.**

During work, do not negotiate bends with the machine on the ground, nor work in reverse gear.



**WARNING**

**Always lift the shredder off the ground when changing direction, turning or reversing, switching off the power takeoff beforehand.**



**WARNING**

**Do not let the blades turn when the flai head is raised for any reason, because can cause serious injury or even death from objects thrown from the blades.**



**During use, the shredder may give rise to the emission of dust. It is recommended to use tractors with a cab with filters on the ventilation system, or to use suitable systems to protect the airways, such as dust masks or masks with a filter.**



### 6.3.1 Arms safety

The machine is provided with a mechanical safety device (**A** - FIG. 6.2), which comes into operation when the cutting head touches an obstacle and the tractor keeps moving. This device allows both the moving back of the arm and the absorption of small impacts, thus giving the operator time to perform the necessary manoeuvres to overcome the obstacle, after which the arm will resume working position.

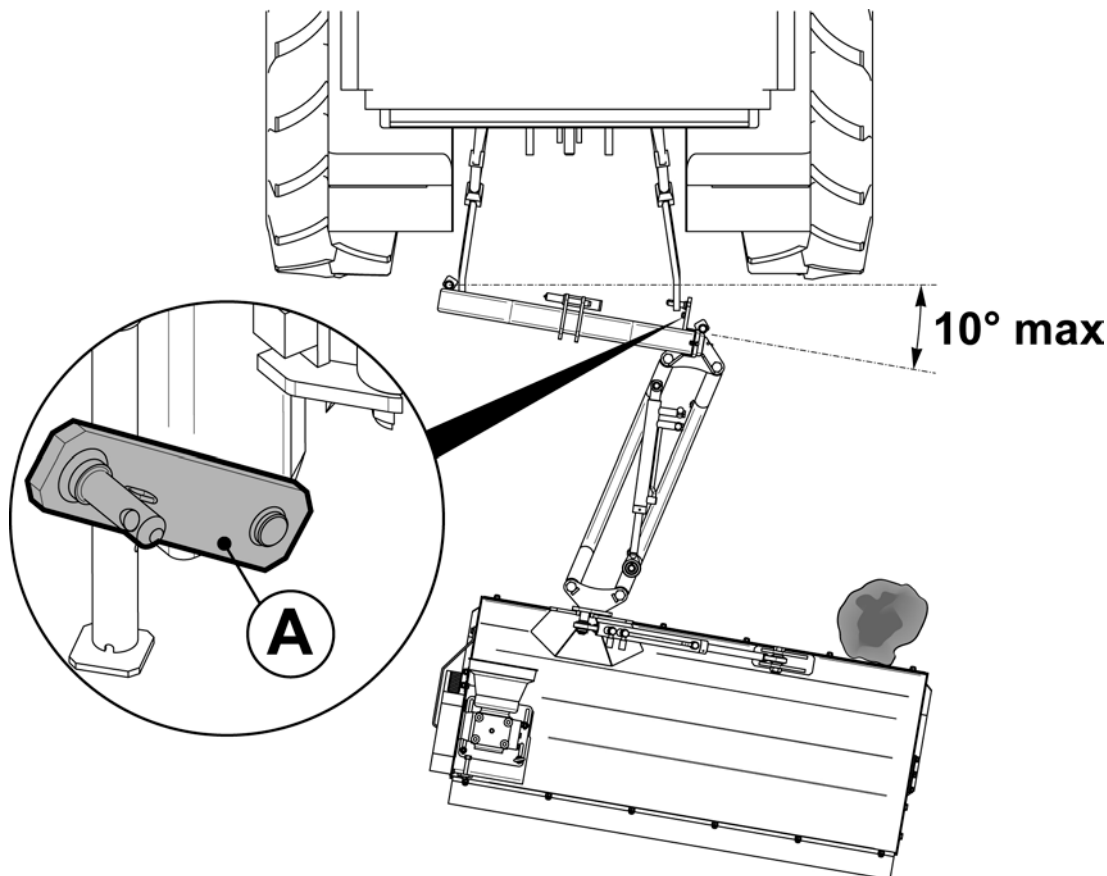


FIG. 6.2



During folding of the arms, never exceed angle of 10°, to avoid structural problems with the machine (FIG. 6.2).

The slot on the third point upper pin helps the shredder to follow slight gullies in the terrain better. In the presence of deeper gullies or steep climbs, we recommend replacing the third point stiff stabilizer with a chain (FIG. 6.3).

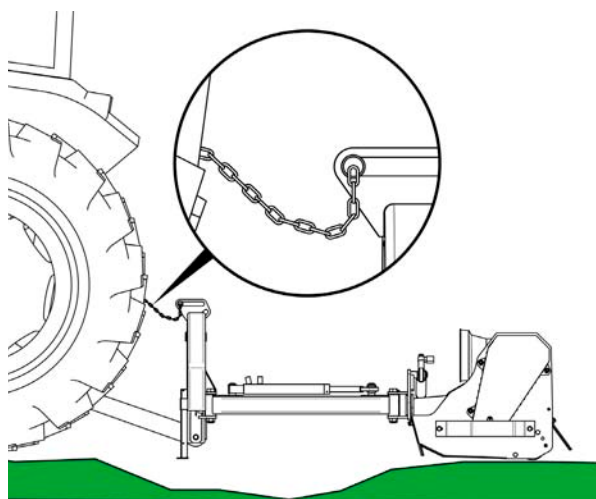


FIG. 6.3

## 6.4 Stopping

Before stopping the tractor:

- Close the arm and lower the shredder to the ground
- Disconnect the power takeoff
- Turn off the tractor, take the starting key out and apply the hand brake
- If the ground is sloping, insert wedges to block the tractor wheels.
- Wait for all rotating motion to stop before proceeding to drive or shut down the tractor.

## 6.5 Transport position

For road transport, it is mandatory to:

- Observe all the road transport requirements.
- Apply suitable traffic warning signs.
- Not to raise the shredder too much, the inclination of the PTO shaft must not exceed an angle of 30° with the power takeoff switched off.
- If the machine profile covers the tractor tail lights it is necessary to fit a rear bar with warning lights.
- Check that the hydraulic lifting levers are blocked, to avoid the machine coming down during transport.
- Fix the flail head with the chain provided, to prevent movements outside the machine profile (FIG. 6.4).

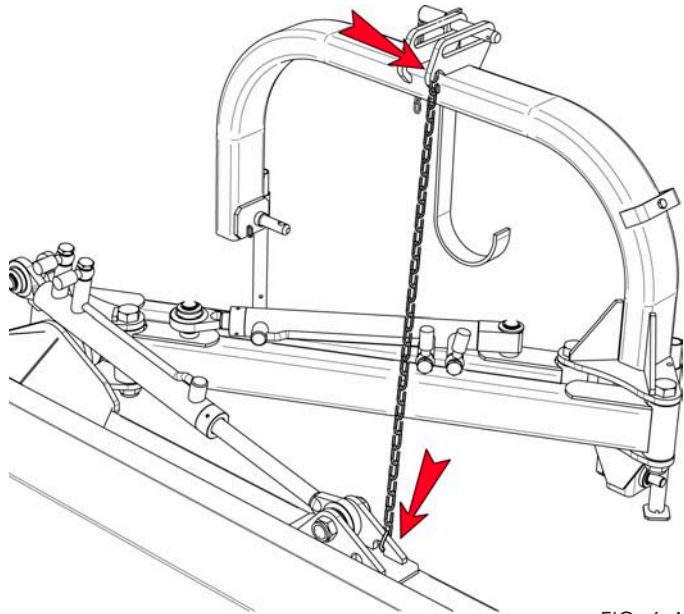


FIG. 6.4



**WARNING**

**Never engage the power to the machine when the cutter unit is in the transport position.**

As well as respecting the rules, it must be remembered that, when travelling on public roads, great care must be taken to comply with any particular requirements specified in the tractor registration document, and to proceed at an appropriate speed, especially when carrying equipment with large projecting parts at front and rear, or when the road is busy, winding or steep.

When going out onto the road after work, care must be taken to clean the tyres or other working parts, to avoid dirtying the road surface with earth or other material.



**WARNING**

**During transport reduce speed especially on bumpy roads. The weight of the machine may render driving difficult and damage the machine itself.**  
**During road transport the power takeoff must be disconnected.**



## **7 ORDINARY MAINTENANCE**

The recommended criteria for routine maintenance of the machine are illustrated, based on the company's experience and on advice and suggestions received on various occasions from our customers.

These criteria are not exhaustive and may be further integrated also by collaborating with our customers, whom we thank in advance.

Good routine maintenance keeps down the working costs of the machine and allows you to make the most of its potential.

For specific repair or maintenance operations where it may be necessary to lift the machine from the ground or tilt it, it is mandatory to utilize proper tools, hoist that are appropriate for this purpose.

It is recommended to always apply to authorized dealerships and workshops that are properly equipped. For any replacement of parts of the machine the customer has to use genuine parts only that are supplied from the manufacturer or their authorized dealers.

### **Preliminary warnings**



**WARNING**

**In the event of breakdown, the operator must wait for all the moving parts to stop; turn off the power takeoff immediately, take out the ignition key, get off the tractor to ascertain the extent of the problem, and make any adjustments to the machine.**

### **Before each day's use, follow the procedure:**

- check the condition and the correct position of the safety guards and shields
- check for vibration. Run the machine at full speed check for vibration. Run the machine at full speed (pay the greatest attention during this sight and sound check and ensure that there is no one in the danger radius of the machine).

Do not operate with the machine in an out of balance or with presence of abnormal noise or vibration. Check the cuttershaft to ensure an items are properly tightened.

In extremely dusty conditions, it's desirable to lubricate more often than every 8 hours.

### **Before starting any maintenance, the following operations must be performed:**

- disconnect the power takeoff from the tractor;
- switch off the tractor engine, pull the hand brake and remove the ignition key from the dashboard;
- lower the shredder to ground level;
- always use suitable Personal Protection Equipment (accident-prevention footwear, safety gloves, protective goggles);
- take all the accident-prevention precautions contemplated for the type of operation being carried out.

It is good practice to clean the heads of the grease pumps, removing mud or other residue, before using them to inject lubricating grease.

[illegible][illegible]

**Every day**, grease all the pins, the bearings, the trunnions and the telescopic barrel of the PTO join.

- In the event of long inactivity, repeat these operations before using the machine again.
- Use grease such as GR MU EP/2 (classification DIN 51825 (KP 2 K)).
- For the angular gearbox use oil type AGIP BLASIA 220 or compatible oils (classification ISO VG 220).
- Oil quantity (on level ground) 0.55 l - 0.14 gal.

## 7.1 Greasing

Use the Maintenance Checklist provided to keep a record of all scheduled maintenance.

- Use a hand-held grease gun for all greasing.
- Wipe grease fitting with a clean cloth before greasing, to avoid injecting dirt and grit.
- Replace and repair broken fittings immediately.
- If fittings will not take grease, remove and clean thoroughly. Also clean lubricant passageway. Replace fitting if necessary.

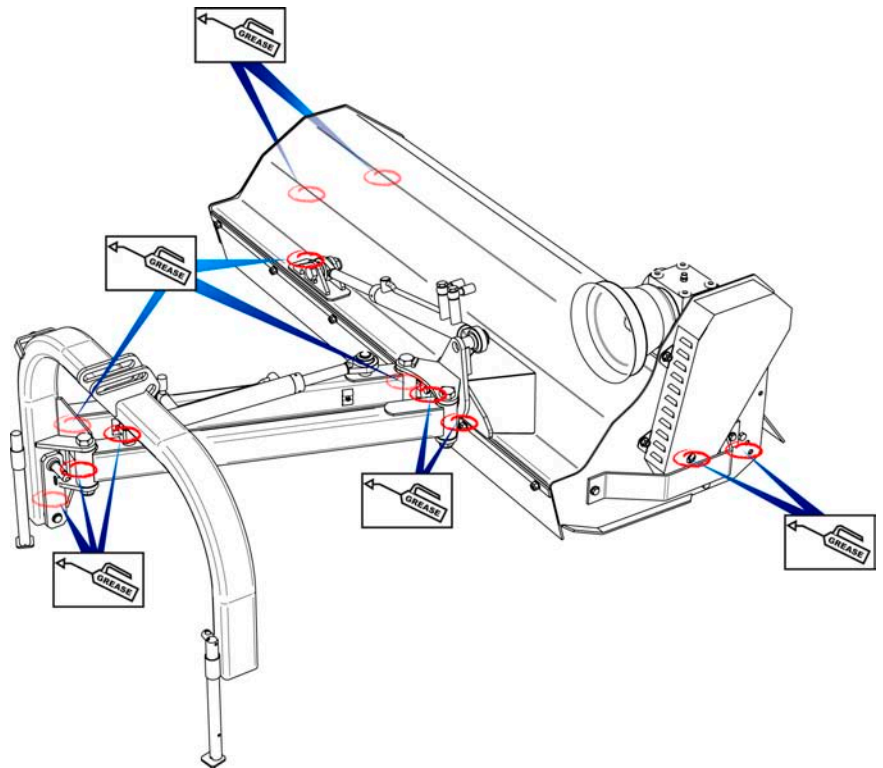


FIG. 7.1



CAUTION

**INCREASE THE MACHINE MAINTENANCE FREQUENCY IF IT IS BEING USED IN PARTICULARLY HARSH CONDITIONS.**

## 7.2 State of the belts



CAUTION

**Check for correct belt tension every 50 hours.  
Change the belts every 500 hours.**

### New belts

If the belts are new, it is recommended to make the first check at least after 2 hours of actual work to check how they are settling and the degree of tension.

### Used belts

If the belts are settled or have already been used for more than 24 hours, it is recommended to check their state of wear, if necessary restoring tension to the correct value (see paragraph 5.3).

### 7.3 Trouble shooting chart

PROBLEMS	CAUSES	REMEDIES
Irregular cut	Worn, bent or broken flails	Replace
	The machine is not correctly positioned parallel to the ground.	Adjust the stabilizers connected to the tractor or the flail head rotation hydraulic ram.
	Difficulty in unloading chopped material caused by excessive advance speed.	Reduce advanced speed.
	The rotor turns at insufficient rpm.	Check the rpm on the tractor PTO and adjust it to the number of rpm required by the machine after consulting the machine technical data. Check to see if the motor or pump have been damaged. Repair or replace motor or pump.
	Slipping of the belts on the pulleys	Correct the belt tension
Incorrect cutting height.	Incorrect roller position.	Adjust the roller in order to reduce or increase cutting height.
Excessive machine operating noise	Loose bolts.	Check and correct the tightening of screws and nuts if necessary.
	Machine with cracks or initial signs of breakage.	Have the frames repaired at authorized Ferri workshops. Check to see if there are any moving parts unbalanced and correct the defect.
	Worn bearings	Replace
Gearbox noise	Lack of oil	Fill to level
	Worn or damaged gears.	Repair or replace.
	Worn or damaged bearings	Repair or replace
Vibration	Broken, worn or missing flails	Replace flails. Check rotor balancing
	Unbalanced flail holder shaft	Check and have repairs or replacements made in authorized Ferri workshops
	Worn flail holder shaft bearings	Have it replaced in specialized workshops
	Moving parts unbalanced.	Identify the part responsible for the problem (unbalanced rotor, defective bearing, broken or missing flail, etc.) and have it repaired or replaced at authorized Ferri workshops.
	Couplings at the 2 ends of the PTO shaft out of parallel alignment.	Check the coupling of the machine to the tractor and the necessary adjustments.
	Flails blocked	Stop the machine and free them
	Plant waste or foreign objects wrapped around the rotor shaft and/or the cutting flails or encrustation visible on the cutting tools or supports.	Remove waste or foreign objects or replace cutting tools (in this case, always replace opposing pairs). Clean the rotor and the cutting flails.
	Loose bolts.	Check and correct the tightening of screws and nuts if necessary.
	Rotor flanges not perfectly adherent to the walls of the machine. Deformed machine side panels.	Check the conditions of the machine side panels and repair if necessary. Check the correct assembly of the flanges and the tightening of the respective screws.
Premature flail wear	Flails touch the ground or work on rocky soil	Adjust height of cut
Breakage of roller bearings	Violent impact on the ground when the machine is lowered	Lower it gently
	Dirty or little greased bearings	Clean and/or grease
Excessive backlash in the arms and joints	Worn pins or bushes	Replace

PROBLEMS	CAUSES	REMEDIES
Flail-holder rotor speed is lower than expected	Loose belts	Restore right belt tightness
	Excessive wear of belts and pulleys	Replace all damaged or worn parts
The flail head shifts backward during working.	Incorrect max. pressure valve setting.	Have valve pressure setting checked at authorized Ferri workshops.
	Leakage of oil from hydraulic ram.	Check the hydraulic ram oil seals and sealing in general and have repairs or replacements made at authorized Ferri workshops.
	Advance speed excessive for the type of working being performed	Reduce advanced speed
Arm lower involuntarily	Excessive oil leakage from the hydraulic ram; oil seals worn-out inside the hydraulic ram.	Check the hydraulic ram oil seals and sealing in general and have repairs or replacements made at authorized Ferri workshops.
Difficulty in sliding out the PTO shaft.	PTO shaft not lubricated	Lubricate the PTO shaft.
	Bent PTO.	Replace the PTO.
Excessive play in the arm pins.	Worn pins.	Replace the pins.
	Worn bushes.	Replace bushes.
Excessive noise from the arm hinges.	Insufficient lubrication.	Lubricate.
	Insufficient lubrication caused by clogging in the lubrication duct.	Repair or replace the defective part. Check the condition of the grease gun, clean and replace if damaged
Irregular arm operation.	Elevated maneuver speed	Adjust the number of tractor PTO rpm. Adjust the maneuver speed of the function involved by means of adjustable choke (if present); otherwise, contact an authorized workshop
		Air present inside hydraulic circuit.
Belts break too soon.	Excessive belt tightness.	Check the pre-tightening of the belts.
	Pulleys out of alignment.	Align the belts.
	Flails touch the ground	Regolare altezza di taglio
	Tractor has more power than can be withstood by the machine.	Connect the machine to a tractor with adequate power.
Belts slip on pulleys.	Insufficient belt tightness.	Check the pre-tightening of the belts
Belts overheating	Belt slipping.	Check the pre-tightening of the belts
	Excessive belt tightness	Check the pre-tightening of the belts
	Working speed not suitable to the quantity of material to chop	Reduce work speed
	Flails touch the ground	Adjust height of cut



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## 8 EXTRAORDINARY MAINTENANCE

Before carrying out any work, it is mandatory to:

- Lower the shredder to the ground.
- Disconnect the power takeoff, turn off the engine and take the starting key out.



Use safety footwear, overalls and safety gloves.

### 8.1 Belts replacement

- Switch off the tractor engine (if running), pull the hand brake and take the keys out of the ignition.
- Remove the lateral protection (1) and the belt casing (2).
- Loosen the nuts (3) and the eyebolt (4) and then unscrew the stabilizer (5).
- Remove the belts (6) and replace them with authentic spare belts.
- After having replaced the belts, regulate them as indicated in Chapter 5.

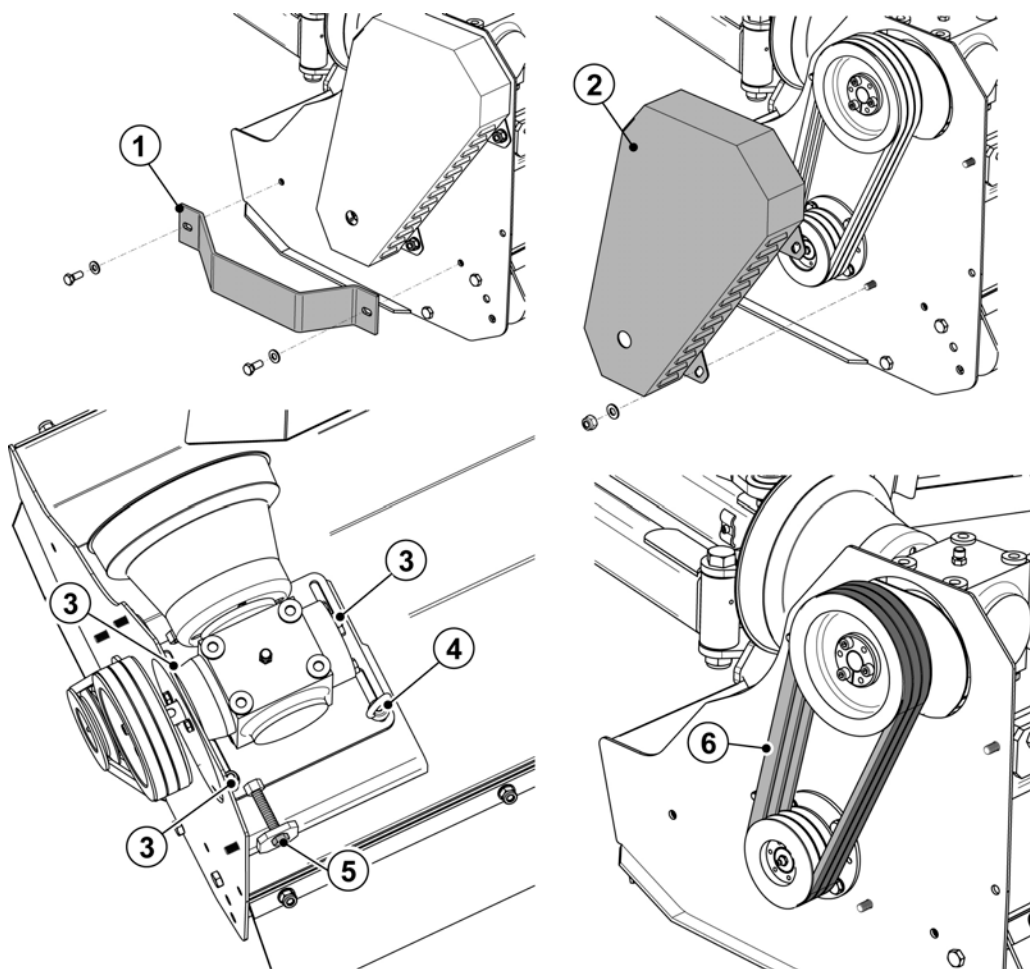


FIG. 8.1



The belts must be replaced for the whole assembly, even if only one belt is deteriorated.

## 8.2 Pipe replacement



**WARNING**

**Any intervention or maintenance on the hydraulic system has to be carried out by duly educated personnel.**

- Before working on the hydraulic system, exhaust all pressure, working with the engine off and using all control levers.
- Unscrew the filling cap on the oil tank to avoid the siphon effect, which could empty the tank.
- Pay particular attention to cleanliness as dirt and dust can cause a great deal of damage to the hydraulic system.
- Replace any damaged pipes with genuine spare parts, or with others of the same specification; ensure that they are not kinked or twisted – remembering to check this throughout the entire cycle of arm movement.
- Take care not to spill the oil during the pipe replacement operations, but to collect it in containers and consign it to special oil disposal centres.



**WARNING**

**Every day, check the state of wear of the hydraulic pipes, changing them if they become abraded or cracked.**



**WARNING**

**Change the hydraulic pipes at least every 6 years.**

## 8.3 Pin replacement

Carry out this operation with the aid of a lift or hoist, to prevent detached components falling, and also upsetting the balance of the machine.

When replacing parts, clean and grease their housing.

## 8.4 Rotor

The rotor shaft has already been electronically balanced by FERRI: if a flail has to be replaced, it is advisable to change the whole set. Not fitting authentic flails may cause vibrations of the machine or breakage of the rolling bearings.



**WARNING**

**To replace damaged parts or flails, it is necessary to employ specialised personnel, applying to the FERRI Assistance Service or that of its dealers.**



**WARNING**

**If irregularities or strange noises are noticed after changing the flails, contact FERRI immediately.**



## 8.5 Rear/Front Guards

The guards must always be in good condition to avoid the possible throwing of material at front and rear. Change these parts immediately if they are even slightly bent or worn.



### IMPORTANT WARNING:

**Before starting working with the machine it is absolutely indispensable to check that all the GUARDS are perfectly whole and in working order.**

**Blocked, deformed and/or damaged guards must absolutely be repaired in order to guarantee maximum operating safety and to protect persons and/or things from injury by thrown objects.**

**If he fails to do so, the user is held responsible for any civil and penal damage that may ensue.**

To change the guards (FIG. 8.2) you must:

- Unscrew the anchoring nuts (1) and their washers (2) of the rubberized canvas (4) fixing rod (3);
- replace the damaged rubberized canvas (4);
- reposition the fixing rod (3) and the washers (2);
- tighten the nuts (1);

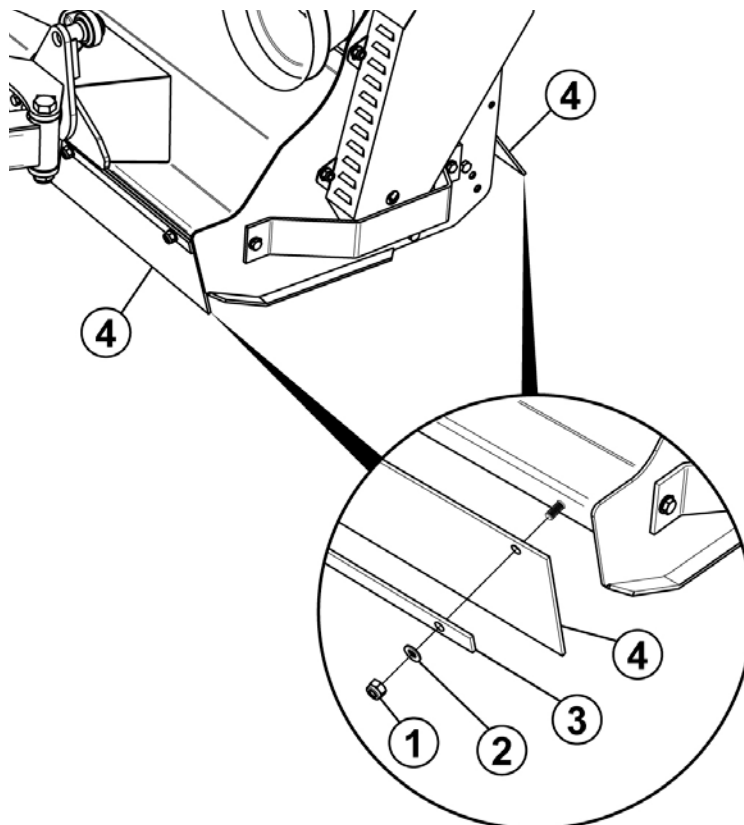


FIG. 8.2



**Use exclusively authentic spare parts.**

## 8.6 Flail replacement

When the flails are worn, they must all be replaced. In case of a partly broken flail, it is advisable to replace the broken one and the one diametrically opposite to it, in order to maintain the balance (FIG. 8.3).

To change the flails, you must lift the machine and work below it. Lift the shredders with the aid of the tractor lifting device, ensure that the power takeoff is disconnected, apply the parking brake, switch off the engine and take the key out of the ignition.

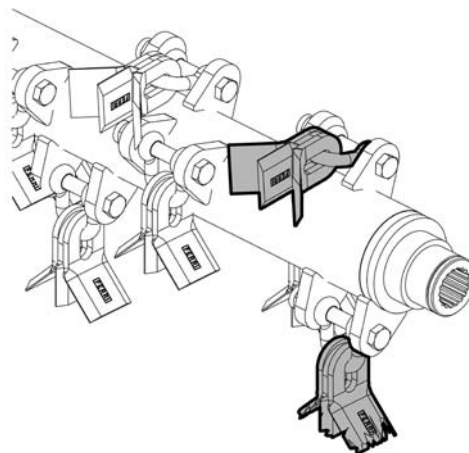


FIG. 8.3



**WARNING**

**Do not rely on the holding power of the hydraulic lift: insert trestles or mechanical struts between the machine and the ground, to avoid the accidental descent of the head.**



**WARNING**

**When replacing the flails, DO NOT REMOVE THE BALANCING WEIGHTS from their original position.**



**WARNING**

**If irregularities or strange noises are noticed after changing the flails, contact FERRI immediately.**



**DANGER**

**Replace bent or broken blade with new blades. Never attempt to weld on blades or straighten blades.**



**CAUTION**

**Use exclusively authentic spare parts.**

## **9 SCRAPPING AND ELIMINATION**

If the machine is to be scrapped, it must be disposed of in suitable waste disposal site, complying with the legislation in force.

If the machine has been put out of commission, the parts that are likely to cause any danger must be rendered harmless.

Recover any old oil and dispose of it in special oil disposal centres.

Before scrapping the machine it is necessary to separate plastic or rubber parts, electric and electronic material.

The materials that make up the machine that must be separated are:

- steel
- mineral oil
- rubber
- plastic
- electrical system wires

The parts composed only of plastic, aluminium or steel may be recycled, if consigned to recycling centres.

## **10 WARRANTY**

On delivery, check the machine and any loose accessories to ensure that it has suffered no damage due to transport or handling.

Any complaints must be sent in writing to the FERRI company within 8 (eight) days of the date of receiving the machine, enclosing a copy of the delivery documents countersigned by the person in charge of transport or handling.

The buyer can apply his rights to the warranty only if the following are respected:

- the clauses in the supply contract;
- the general warranty conditions, indicated on the coupon "General Warranty Conditions", filling in all the parts and signing the DELIVERY CERTIFICATE.

For the replacement of parts of the machine the customer must use exclusively authentic spare parts, supplied directly by FERRI or by authorised dealers.

When ordering spare parts, specify the data listed on the machine identification plate, in particular:

- 1) series
- 2) year of manufacture
- 3) serial number

FERRI ensures the spare parts for a minimum period of **5 years from the end of production of the series**.

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### ***10.1 Cancellation of the Warranty***

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#### **THE WARRANTY IS NO LONGER VALID WHEN:**

- the fault is due to errors in manoeuvring;
- routine maintenance has not been carried out, or has been done in a technically inadequate way or by insufficiently trained personnel;
- the power limit of the machine has been exceeded;
- spare parts are used that are not authentic and at any rate not supplied or authorised by FERRI;
- the instructions given in this manual have not been followed.

## 11 OPTIONAL UNITS

### 11.1 Controls with distributor

For tractors with only one oil intake and on specific customer request, it is possible to fit a control distributor for the hydraulic rams, equipped also with a floating position for controlling the orientation of the shredder.

#### 11.1.1 Assembly procedure

- Fit the distributor (2) fixing it to the plate (1) (Fig. 11.1) with the relative screws for M8 (3).

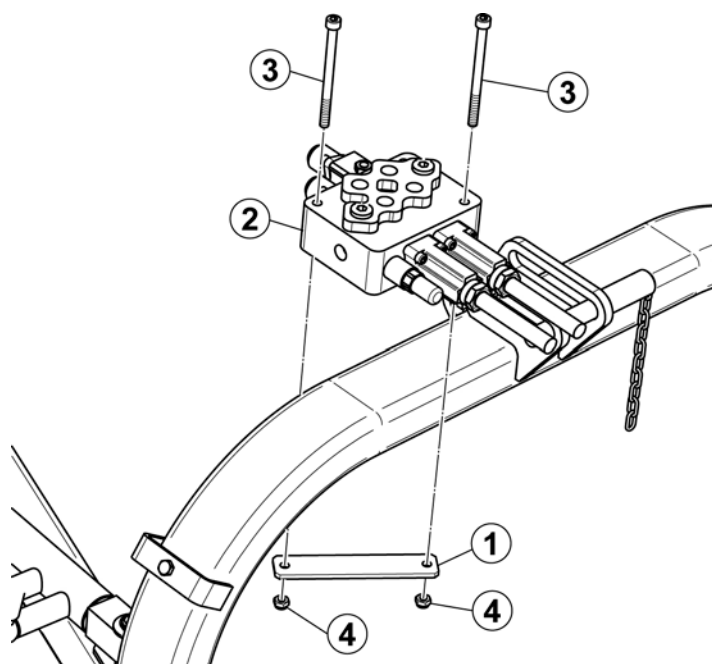
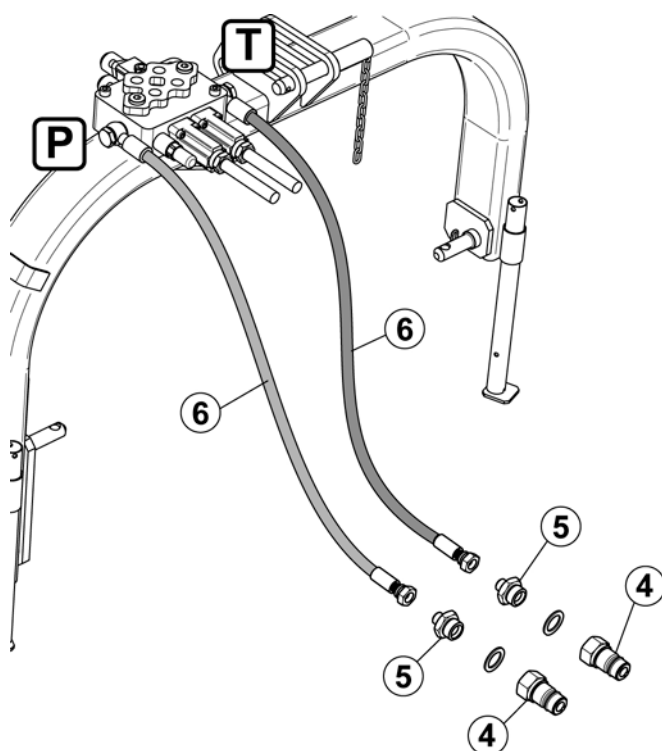


FIG. 11.1



- Remove the four quick couplings (4) from the pipes and fit two of them onto the supply pipes (6), after having screwed on the adapter couplings 1/2" G - 1/4" G (5), with the respective sealing washers (Fig. 11.2).

**Note:** put the two unused quick couplings away in a safe place.

FIG. 11.2

- Connect the pipes (7) to the distributor as indicated in the figure, after having screwed onto the distributor the four adapter couplings 3/8" G - 1/4" G with the respective sealing washers (Fig. 11.3).



**The floating element (F) must be connected to the hydraulic ram for orientation of the shredder (1) (see Chapter 6).**

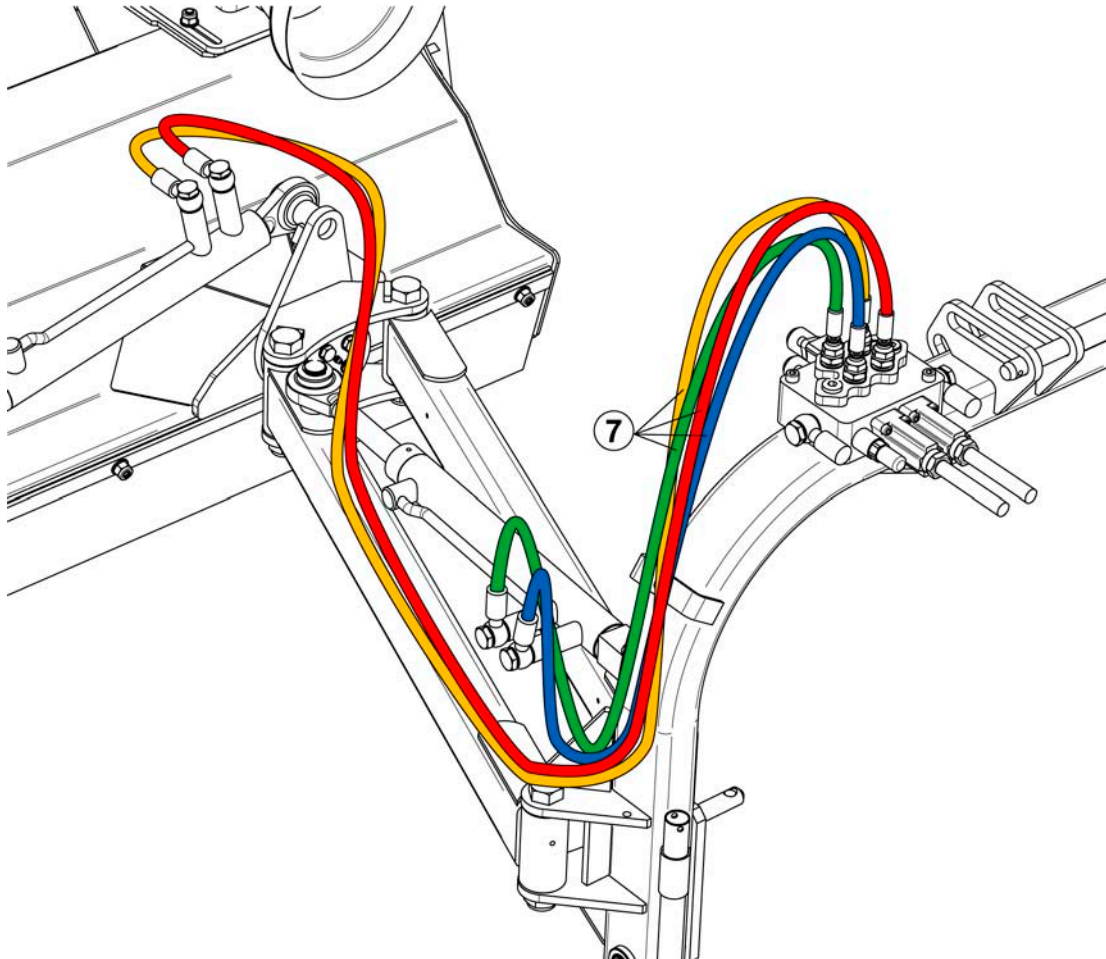


FIG. 11.3





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